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PIATNITZKYSAURUS

***Piatnitzkysaurus* tore the flesh from its prey with long, pointed teeth.**

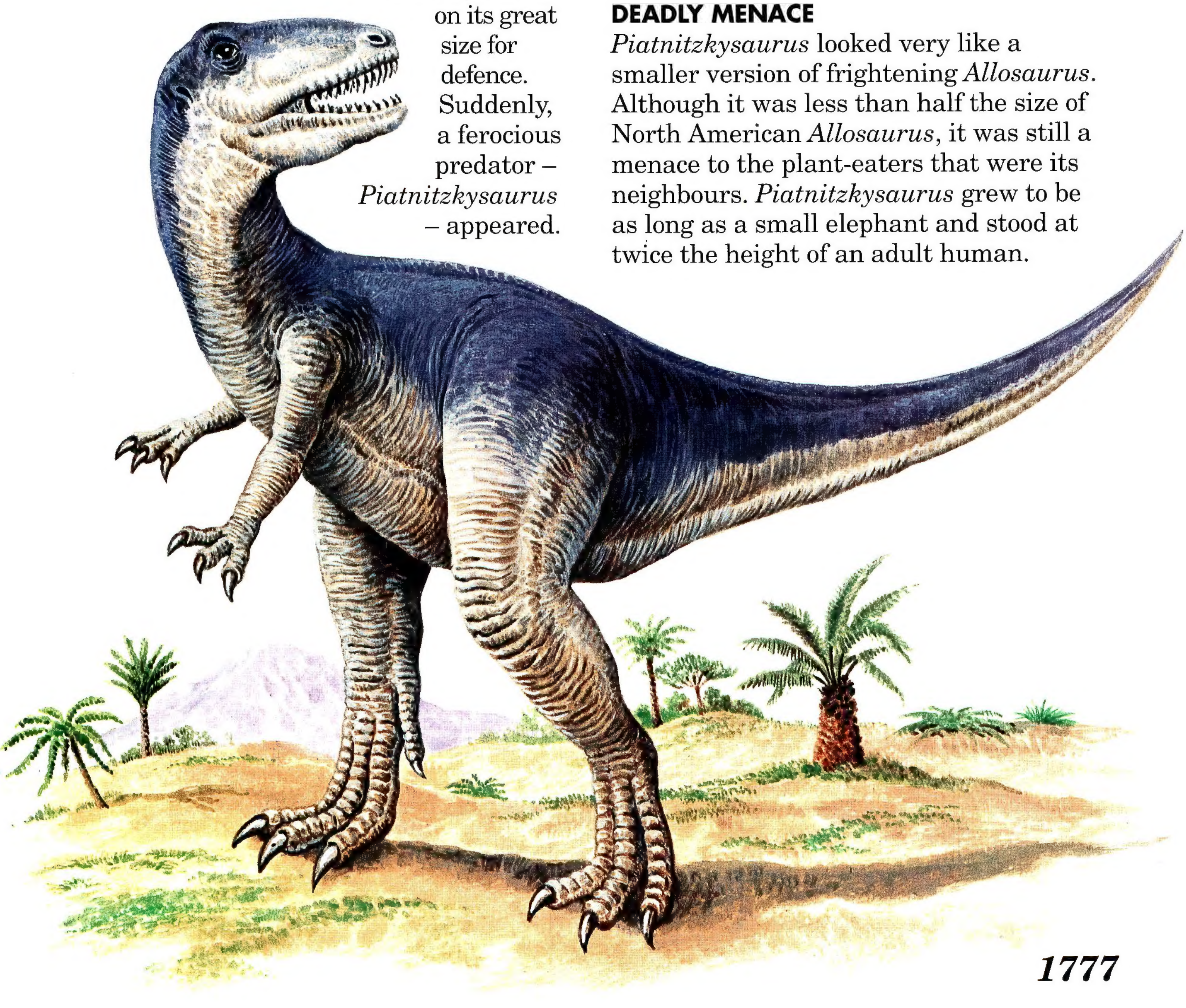
Millions of years ago, a herd of sauropods was browsing by a river in South America. *Patagosaurus* was a slow-moving plant-eater that depended on its great size for defence. Suddenly, a ferocious predator – *Piatnitzkysaurus* – appeared.

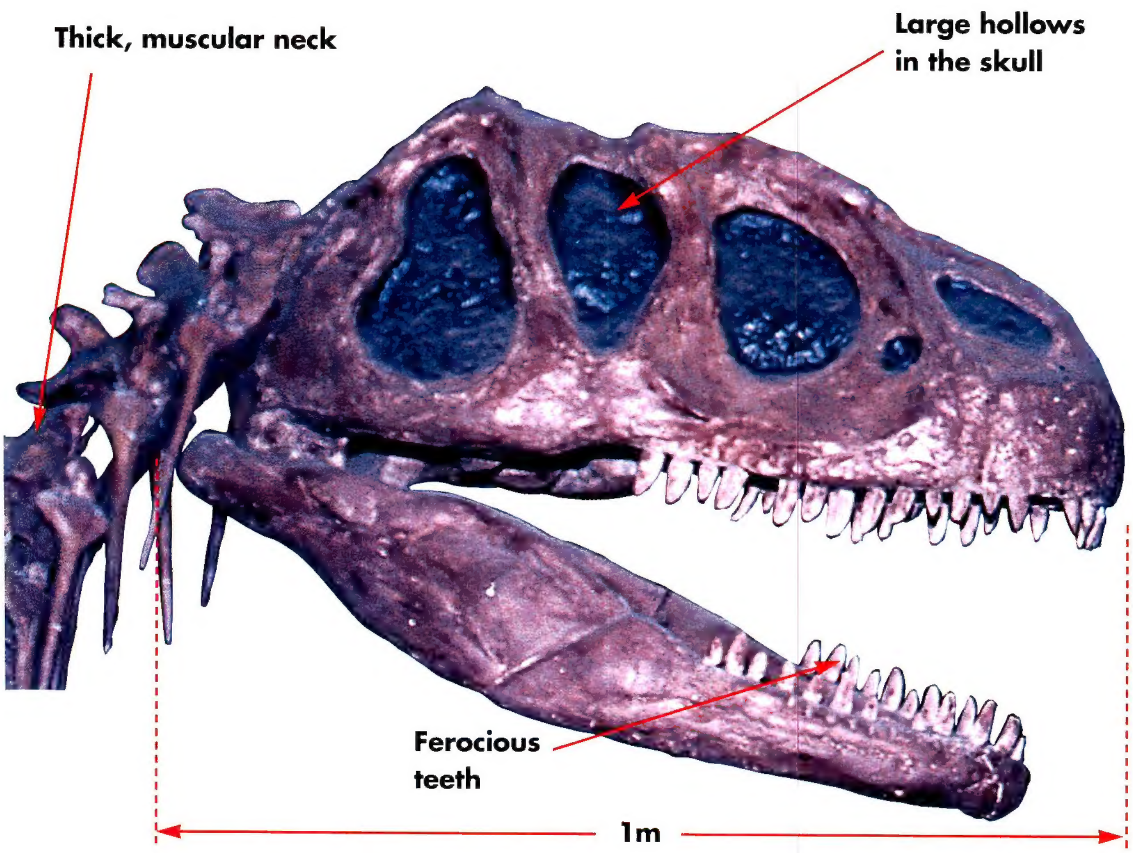
DOUBLE FIND

The fossils of eight adults and one young *Patagosaurus,* and the remains of *Piatnitzkysaurus,* were found at Cerro Condor in Argentina. So it is possible that *Piatnitzkysaurus* may have been responsible for the deaths of these enormous, lumbering plant-eaters.

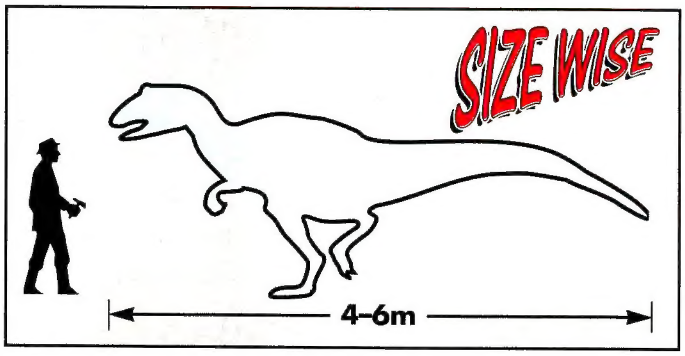
DEADLY MENACE

Piatnitzkysaurus looked very like a smaller version of frightening *Allosaurus*. Although it was less than half the size of North American *Allosaurus*, it was still a menace to the plant-eaters that were its neighbours. *Piatnitzkysaurus* grew to be as long as a small elephant and stood at twice the height of an adult human.





The large spaces in *Piatnitzkysaurus'* skull allowed it to move its head easily, so it could scan the landscape for its next victim.



MONSTER FACTS

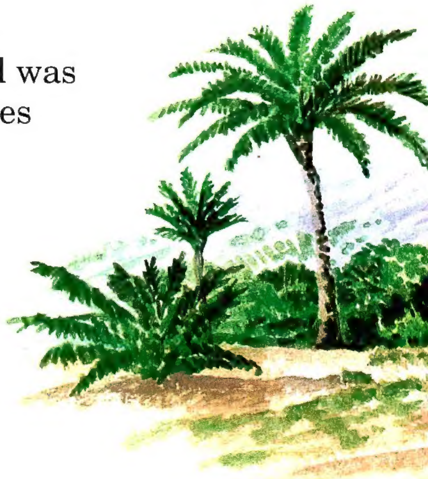
- **NAME:** *Piatnitzkysaurus* (pee-at-nits-kee-saw-rus) means 'Piatnitzky's reptile'
- **GROUP:** dinosaur
- **SIZE:** 4–6m long
- **FOOD:** meat
- **LIVED:** about 160 million years ago in the Mid Jurassic Period in Argentina, South America

SHOCK ABSORBER

Piatnitzkysaurus rushed at its victim with its enormous jaws gaping wide. It probably ambushed its prey at great speed and sank its ferocious teeth into the thick skin of its victim. The impact as teeth met flesh must have been tremendous. *Piatnitzkysaurus* had a thick, muscular neck, which helped to absorb the shock of the impact.

LARGE BUT LIGHT

Although it was large, *Piatnitzkysaurus*' head was quite light. Large spaces or 'windows' in the bones of its skull made the head less heavy, and the dinosaur could move it from side to side with ease.



FAST MOVER

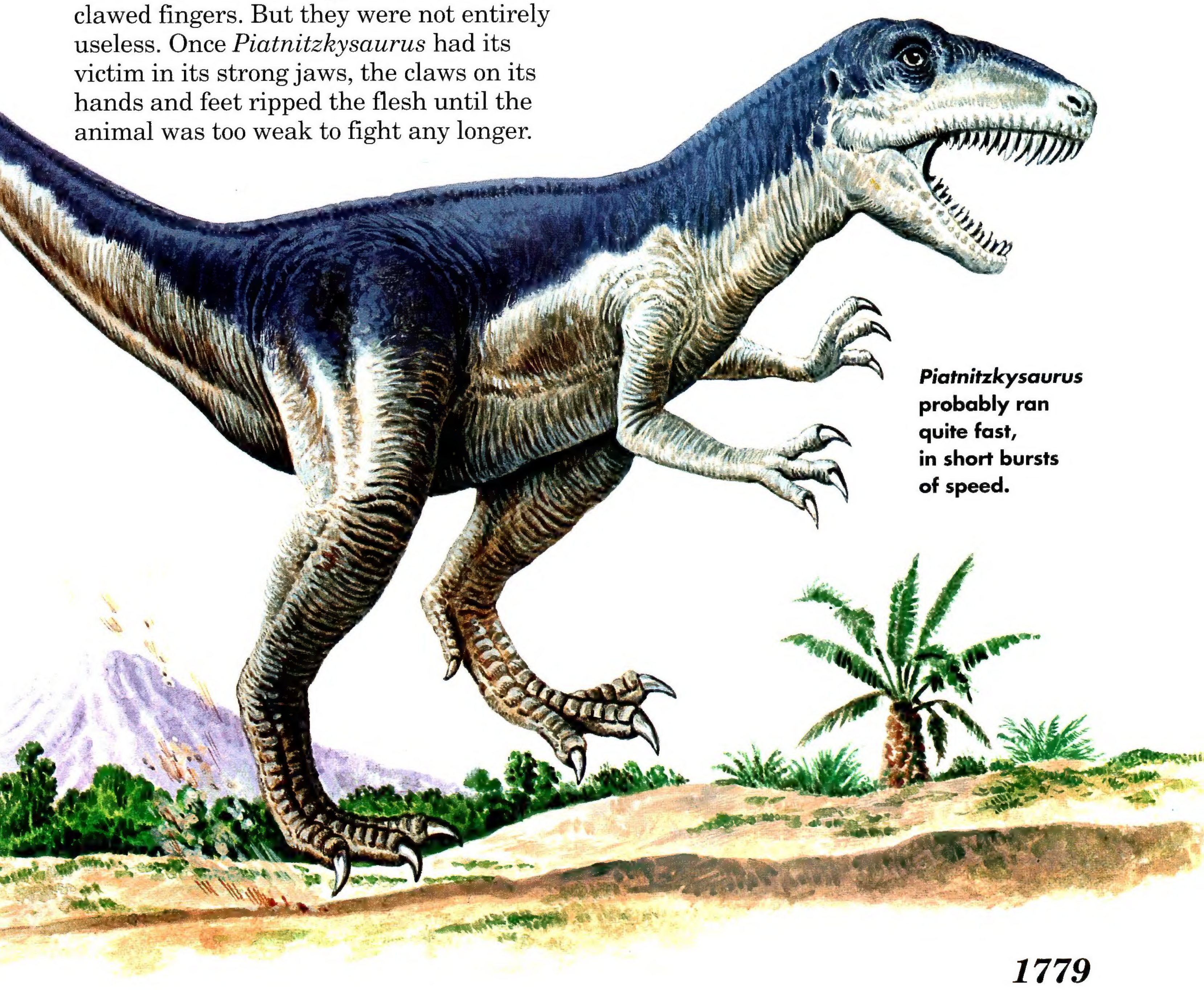
Piatnitzkysaurus probably ran quite fast. Its back legs were moved by powerful muscles and its strong, tapering tail was held high above the ground for balance. It gripped the earth beneath its feet with three of the four claws on its back feet. The fourth claw did not touch the ground.

CLAW-TIPPED HANDS

In contrast to these powerful legs, *Piatnitzkysaurus* had little arms. They were very short and tipped with three clawed fingers. But they were not entirely useless. Once *Piatnitzkysaurus* had its victim in its strong jaws, the claws on its hands and feet ripped the flesh until the animal was too weak to fight any longer.

Is it true that few dinosaurs lived in South America?

Although fewer dinosaurs have been found in South America than in North America and Europe, this does not necessarily mean that they were less common there. Fossil collectors may not have found all the dinosaur remains that exist because there are many places still to explore.



***Piatnitzkysaurus* probably ran quite fast, in short bursts of speed.**

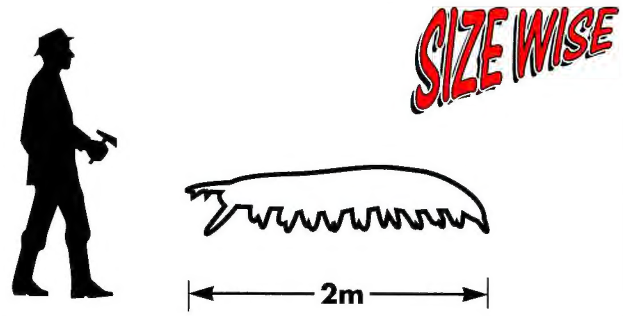
ARTHROPLEURA

***Arthropleura* was a giant creepy-crawly, longer than a man.**

The largest known land arthropod, *Arthropleura*, lived in the shadows of the tall trees that grew in Carboniferous forests. As these trees shed their leaves on to the forest floor, snails, cockroaches and arthropods crawled among the rotting vegetation and enjoyed a non-stop supply of food. *Arthropleura* needed lots of food to satisfy its huge, flat body.

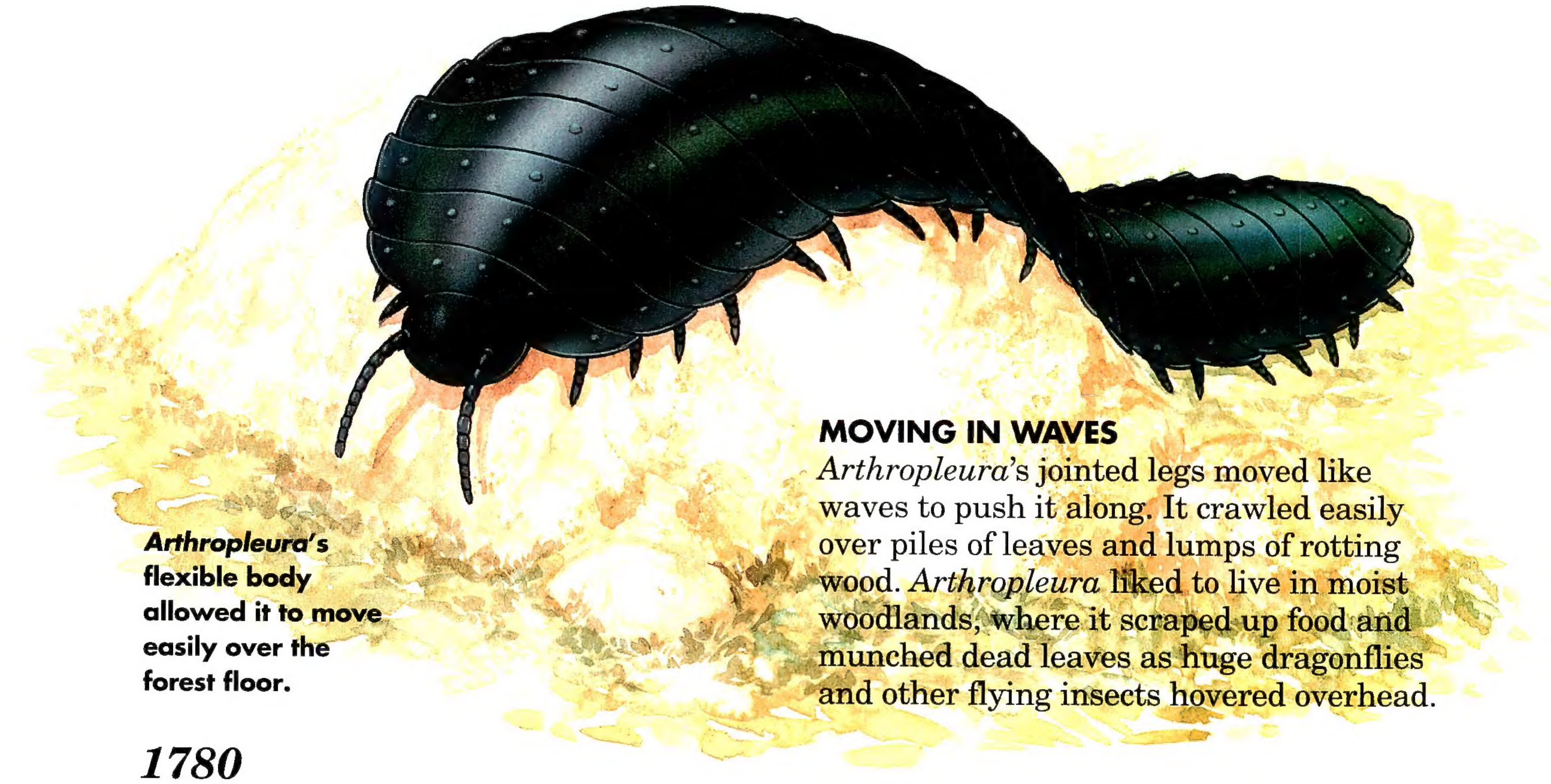
MONSTROUS MILLIPEDE

Arthropleura was like a monstrous millipede. Its long body was divided into many overlapping segments, with pairs of tiny legs attached to each part.



MONSTER FACTS

- **NAME:** *Arthropleura* (ar-thro-ploo-ra) means 'jointed sides'
- **GROUP:** arthropod
- **SIZE:** about 2m long
- **FOOD:** leaves
- **LIVED:** about 320 million years ago in the Carboniferous Period in many places



Arthropleura's flexible body allowed it to move easily over the forest floor.

MOVING IN WAVES

Arthropleura's jointed legs moved like waves to push it along. It crawled easily over piles of leaves and lumps of rotting wood. *Arthropleura* liked to live in moist woodlands, where it scraped up food and munched dead leaves as huge dragonflies and other flying insects hovered overhead.

LEXOVISAURUS

Spiky *Lexovisaurus* was one of the very first stegosaurs.

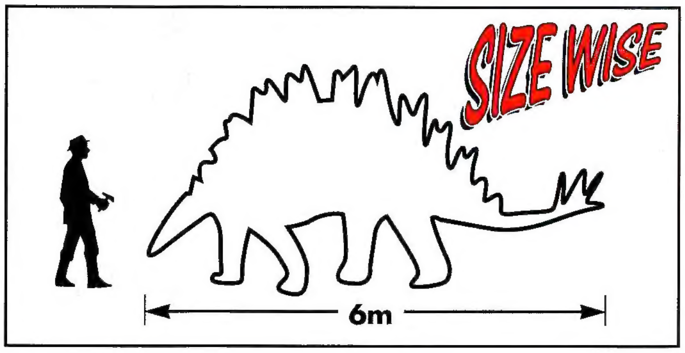
About 160 million years ago, the marshy plains of Europe were filled with horsetails and ferns. *Lexovisaurus* roamed happily through this lush landscape, and pushed its tiny head through the undergrowth as it looked for tasty shoots and plants. In spite of its fierce appearance, it was not a hunting dinosaur and it relied on its body armour to protect it.

SHARP SHAPE

Lexovisaurus had a double row of pointed, spiky plates which stood upright along its back. The plates were firmly attached to the stegosaur's thick skin and grew smaller towards its neck and tail.

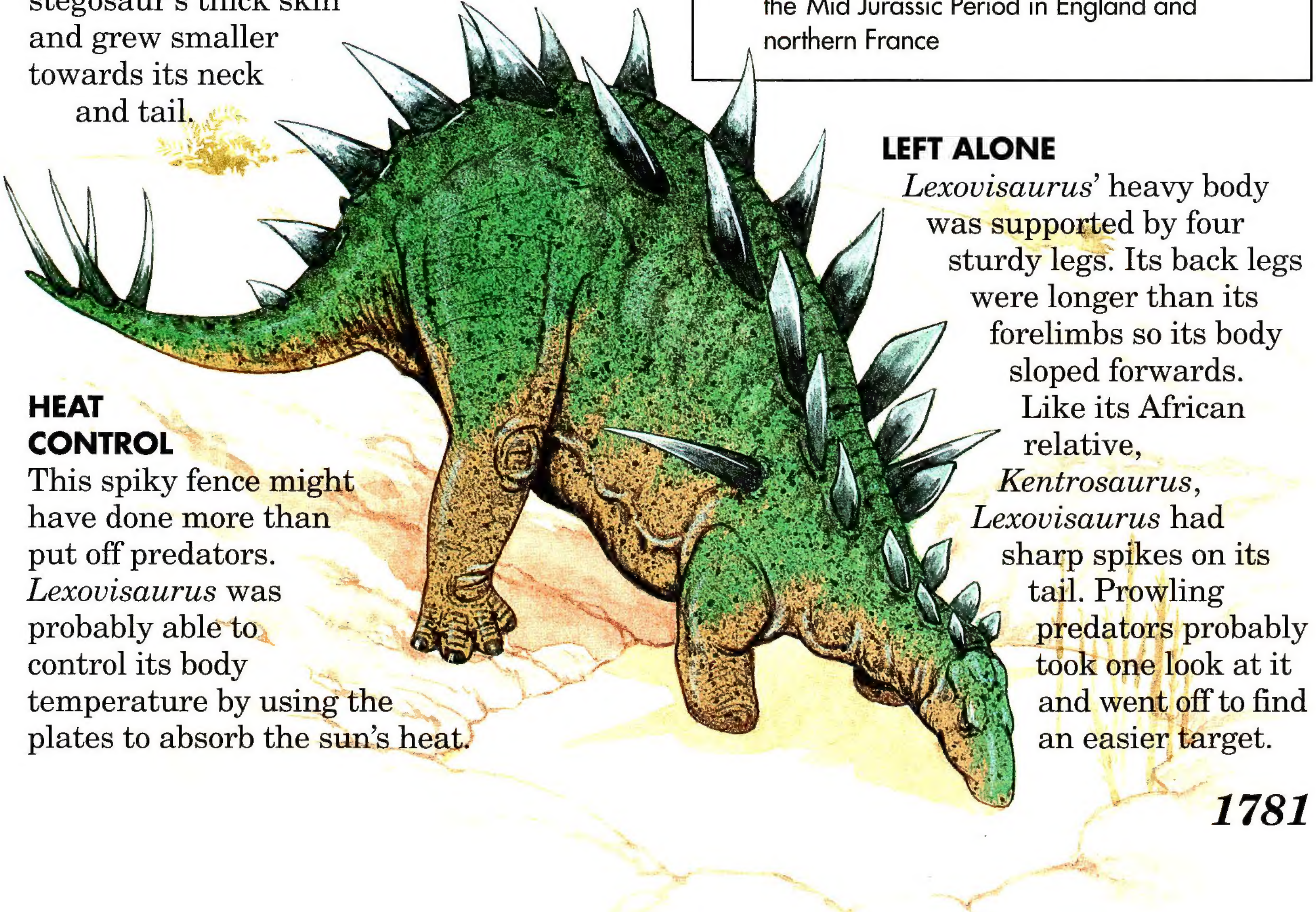
HEAT CONTROL

This spiky fence might have done more than put off predators. *Lexovisaurus* was probably able to control its body temperature by using the plates to absorb the sun's heat.



MONSTER FACTS

- **NAME:** *Lexovisaurus* (lex-oh-vee-saw-rus) means 'Lexovi reptile', named after an ancient French tribe called the Lexovii
- **GROUP:** dinosaur
- **SIZE:** 6m long
- **FOOD:** plants
- **LIVED:** about 160 million years ago in the Mid Jurassic Period in England and northern France



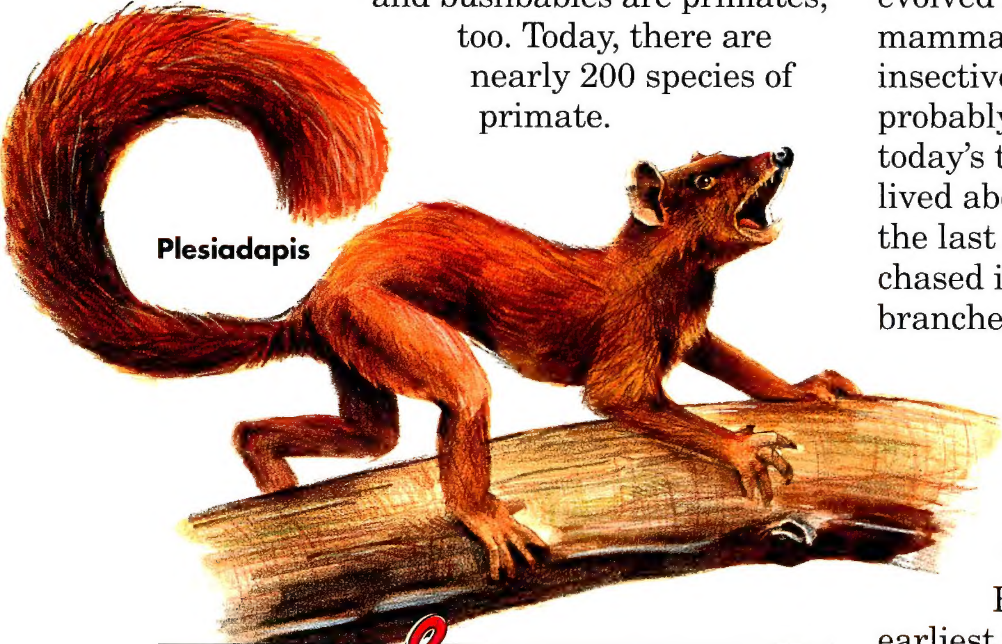
LEFT ALONE

Lexovisaurus' heavy body was supported by four sturdy legs. Its back legs were longer than its forelimbs so its body sloped forwards. Like its African relative, *Kentrosaurus*, *Lexovisaurus* had sharp spikes on its tail. Prowling predators probably took one look at it and went off to find an easier target.

Our ancestors

Tracing the evolution of primates is very exciting because humans are part of this story.

Do you know what a primate is? Look in the mirror. Humans are primates. So are our close relatives, the apes and monkeys. Lemurs and bushbabies are primates, too. Today, there are nearly 200 species of primate.



PRIMATE ANCESTORS

Most prehistoric primates lived in warm, wooded places, as primates do today. Their fossils are rare, so tracing the evolution of primates involves a lot of guesswork. Scientists believe that primates evolved from early mammals called insectivores. These probably looked like today's tree shrews, and lived about the time of the last dinosaurs. They chased insects through the branches of trees.

EARLY PRIMATES

By 55 million years ago, the first true primates had appeared. They spread to North America, Eurasia and Africa. One of the earliest was *Plesiadapis*. It was squirrel-sized and jumped about in the branches with amazing agility. But it did not look much like the primates we see today.

PRIMATE GROUPS

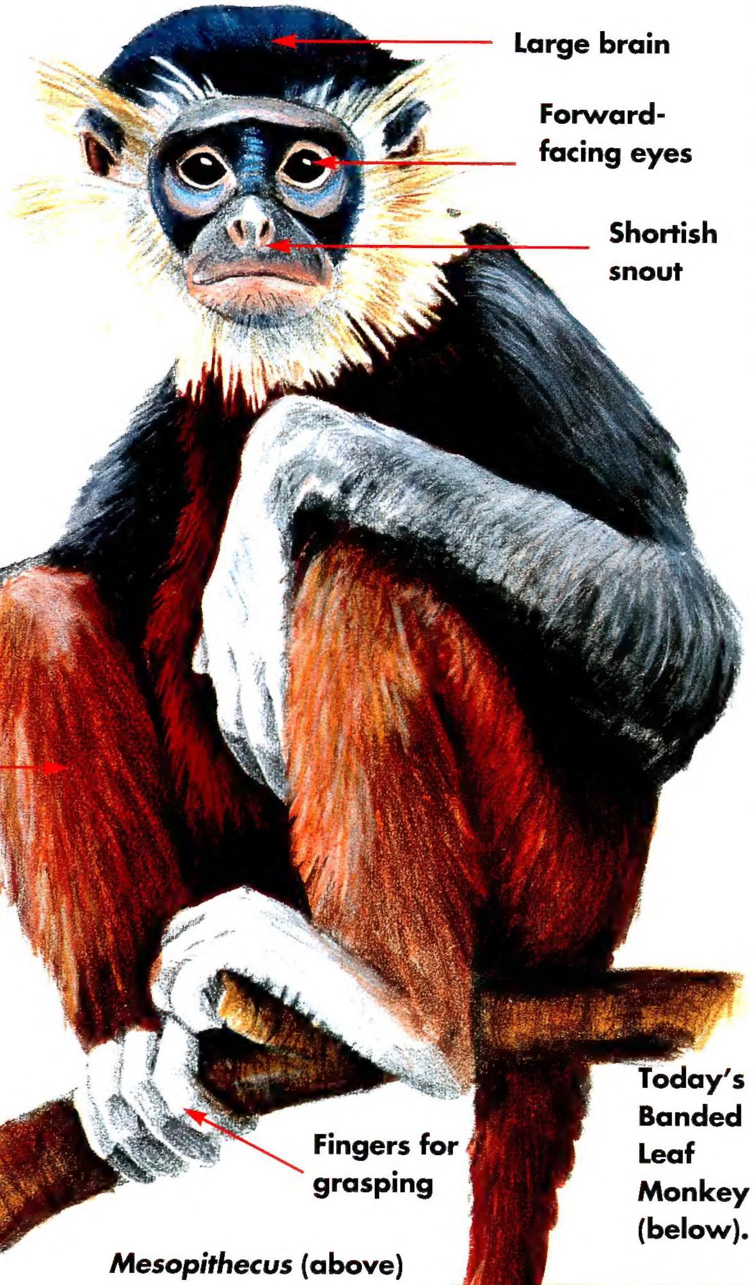
Gradually the primates evolved into the two main groups we know today. These are:

- The prosimians, which are the lemurs, pottos, lorises, tarsiers and bushbabies.
- The simians (or anthropoids), which are the monkeys and apes.

What is? A PRIMATE

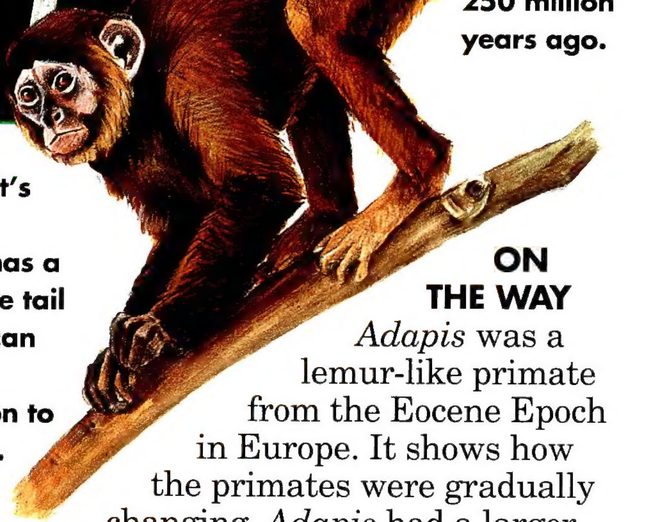
Most of the primate features listed here may have resulted from life in the trees. In general, a primate is a mammal with:

- A big brain for its body size.
- Short cheek teeth to chew varied foods.
- Large eyes that point forwards to give good sight for judging distances.
- Four long limbs, with fingers and toes that can hold, grasp and manipulate well.
- Flat nails, rather than claws, on the fingers and toes, and a short snout.



***Mesopithecus* (above) lived in the Middle East about 20 million years ago. It had long, strong arms and legs, and fingers and thumbs that could grasp well. Its eyes were forward-facing and this meant that *Mesopithecus* could judge distances well.**

Humboldt's Monkey (above) has a prehensile tail which it can use for holding on to branches.



***Dolichocebus* was an early 'flat-nose' from about 250 million years ago.**

ON THE WAY

Adapis was a lemur-like primate from the Eocene Epoch in Europe. It shows how the primates were gradually changing. *Adapis* had a larger brain than earlier primates, a shortish snout, forward-facing eyes and fingers for grasping and holding.

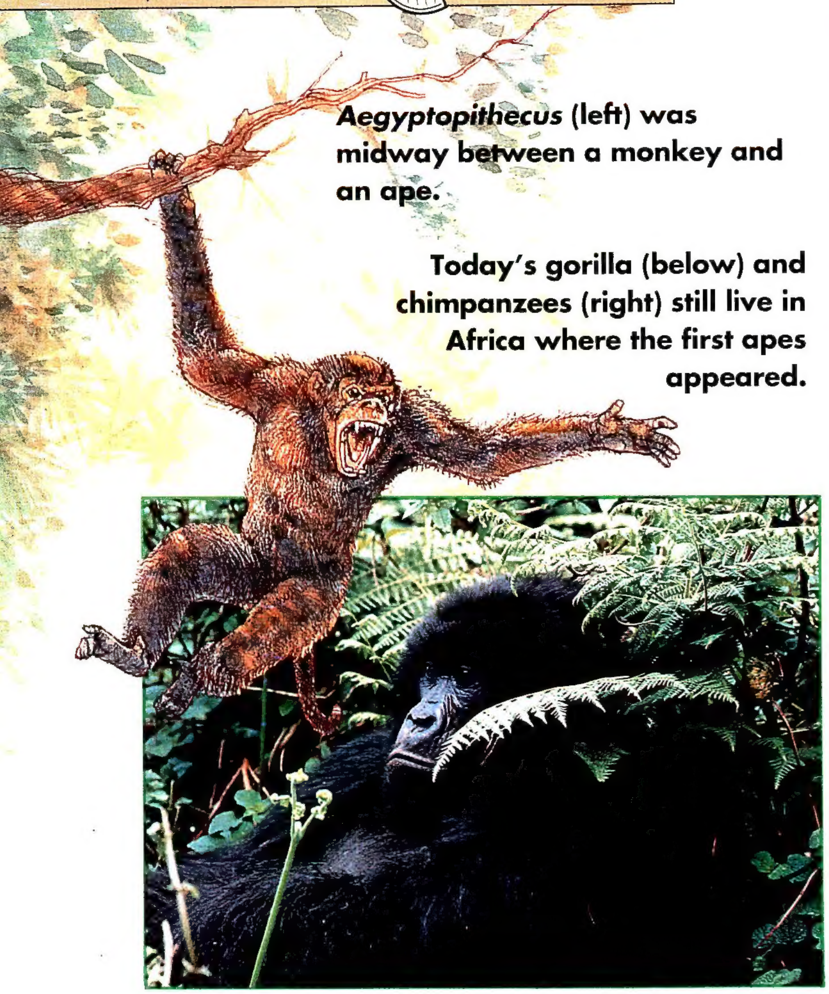
Today's Banded Leaf Monkey (below).

THE EARLY MONKEYS

Monkeys first appeared in Asia about 40 million years ago. They soon split into two groups. The American or New World monkeys are called platyrrhines, or 'flat-noses'. They include spider and woolly monkeys, tamarins and marmosets. Many 'flat-noses' have a prehensile tail. This muscular tail can grip a branch like a fifth limb.

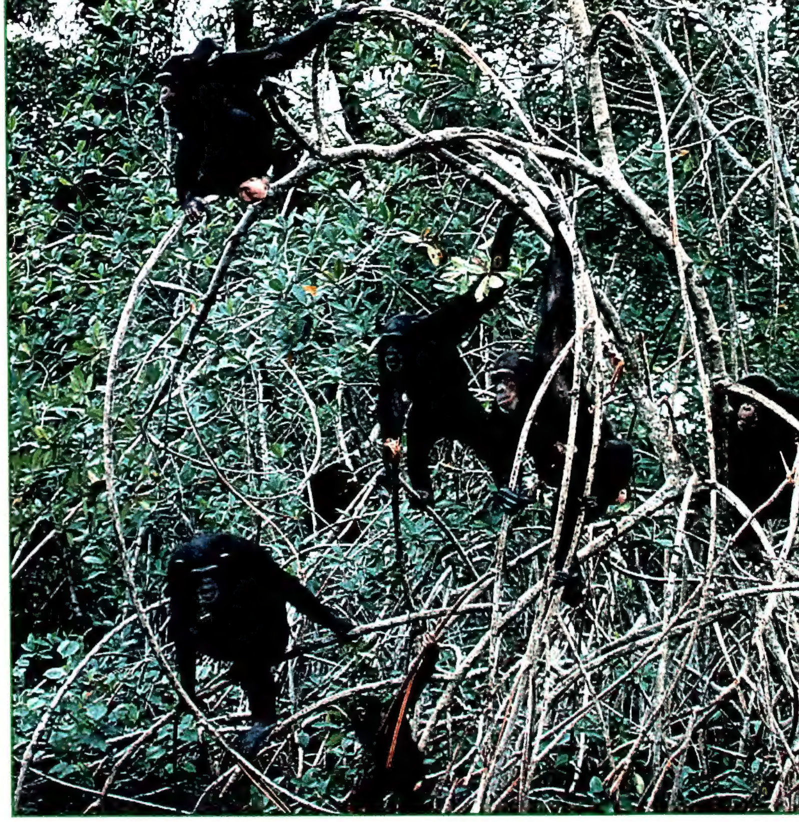
OLD WORLD MONKEYS

The Old World monkeys of Africa and Asia are called catarrhines, or 'down-facing noses'. They do not have a prehensile tail but they do have a much stronger grip between fingers and thumb, which stops them falling from the treetops.



Aegyptopithecus (left) was midway between a monkey and an ape.

Today's gorilla (below) and chimpanzees (right) still live in Africa where the first apes appeared.



LOOK NO TAIL!

The apes are our closest relatives. Apes, monkeys and humans belong to the simian, or anthropoid, group of primates. The main ape feature is a missing one – no tail! The first apes probably appeared about 20 million years ago in Africa.

IT'S A FACT

FOOTPRINTS IN THE SAND

We know that *Australopithecus* walked on two legs from fossil footprints found in Laetoli, Tanzania. They are over three million years old. They look almost identical to the footprints you make as you walk on the damp sand of a beach.

LOTS OF STUDIES

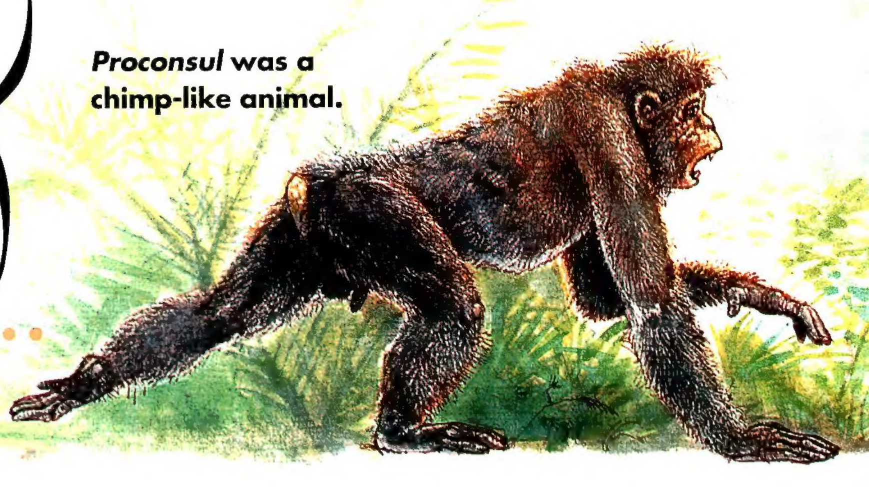
There have been many studies of the fossils of ancient apes, and experts do not always agree with each other's findings. This is because these fossils give clues to our own beginnings, and there are many different theories about how we evolved.

MONKEY-APE

Aegyptopithecus, from Oligocene rocks in Egypt, seems to be a creature midway between a monkey and an ape. It had a short tail and a flattish snout.

A STRONG CHEW

Afropithecus lived in the Middle East and East Africa about 17 million years ago. *Afropithecus* had very thick enamel on its teeth, so it probably ate hard, tough food.



***Proconsul* was a chimp-like animal.**

THE FIRST CHIMP?

Proconsul, which means 'before Consul', was named after Consul – the famous chimpanzee that lived at London Zoo in the 1930s. *Proconsul* was a tree-climbing, chimp-like animal from about 20 million years ago. It moved slowly through the trees, gripping the branches with its hands and feet. *Proconsul* probably fed like today's great apes: picking fruit, chewing shoots and occasionally eating small animals or eggs.

DOWN TO THE GROUND

Ramapithecus lived in Africa, Europe and Asia about 10 to 15 million years ago. At that time, the world's climate was getting drier and trees were giving way to grass. So *Ramapithecus* may have left the trees and taken to moving on all fours across the open plains. When it stood on its back legs, it would have been about 1.2m tall.

SOUTHERN APE

Australopithecus, the 'southern ape', evolved nearly 4 million years ago in Africa.

WALKING TALL

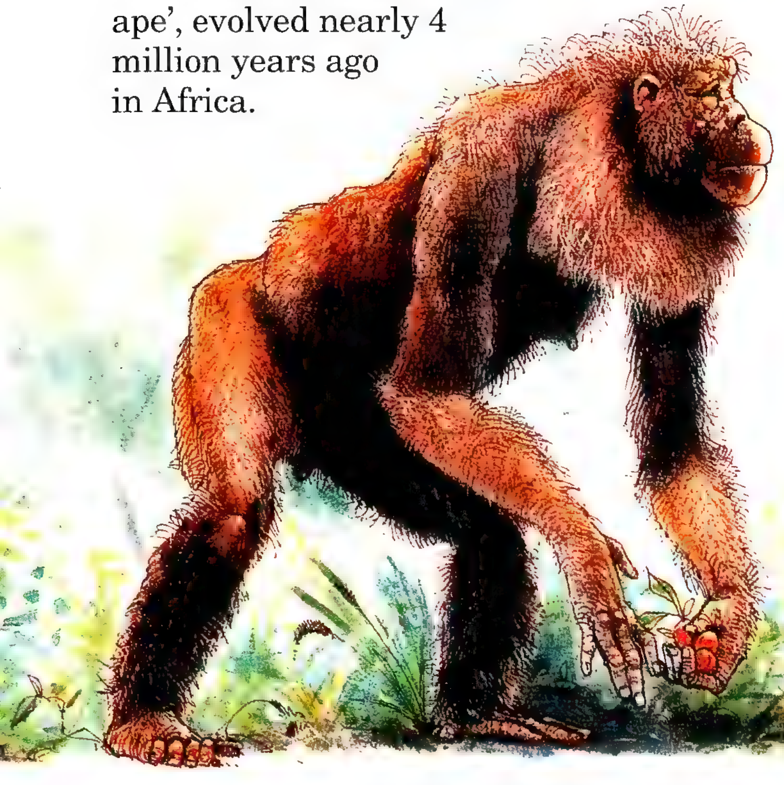
Australopithecus had an ape-like head and face. But it also had a quite a big brain and human-type teeth, and it walked upright, like us.

LUCY

One of the most famous of all the fossils in the world is 'Lucy'. She was an adult female *Australopithecus* who lived over 3 million years ago. Almost half of her skeleton was found at Hadar, in Ethiopia. She was as tall as a 6-year-old child of today, and probably weighed about 30kg.

EARLY ANCESTOR

Is it true that *Australopithecus* was our ancestor? The evidence suggests so. But that, as they say, is another story!

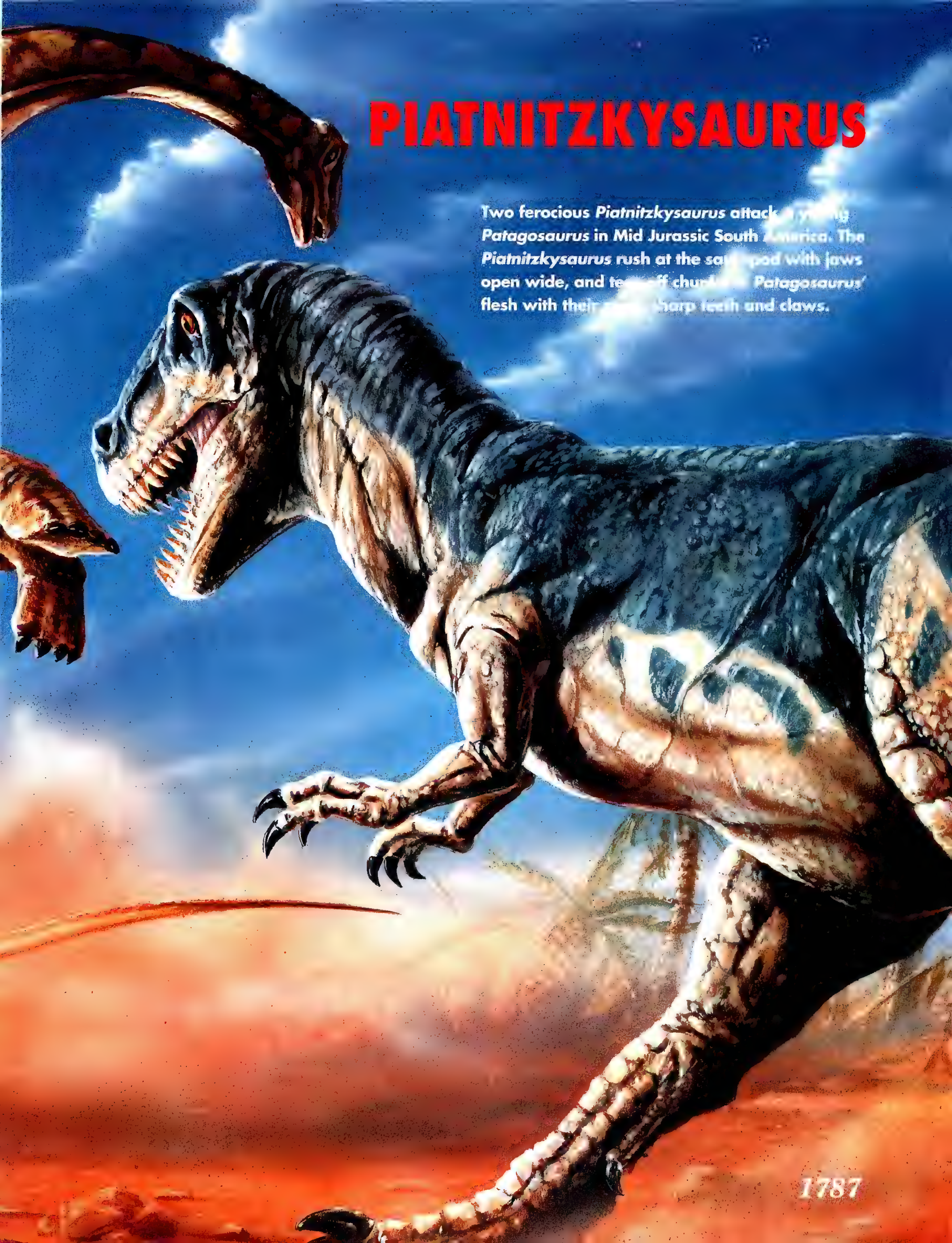


***Ramapithecus* (left) may have left the trees and taken to walking across the grassy plains on all fours.**

Was *Australopithecus* (left and above) our ancestor?

GIANTS OF THE PAST

1786

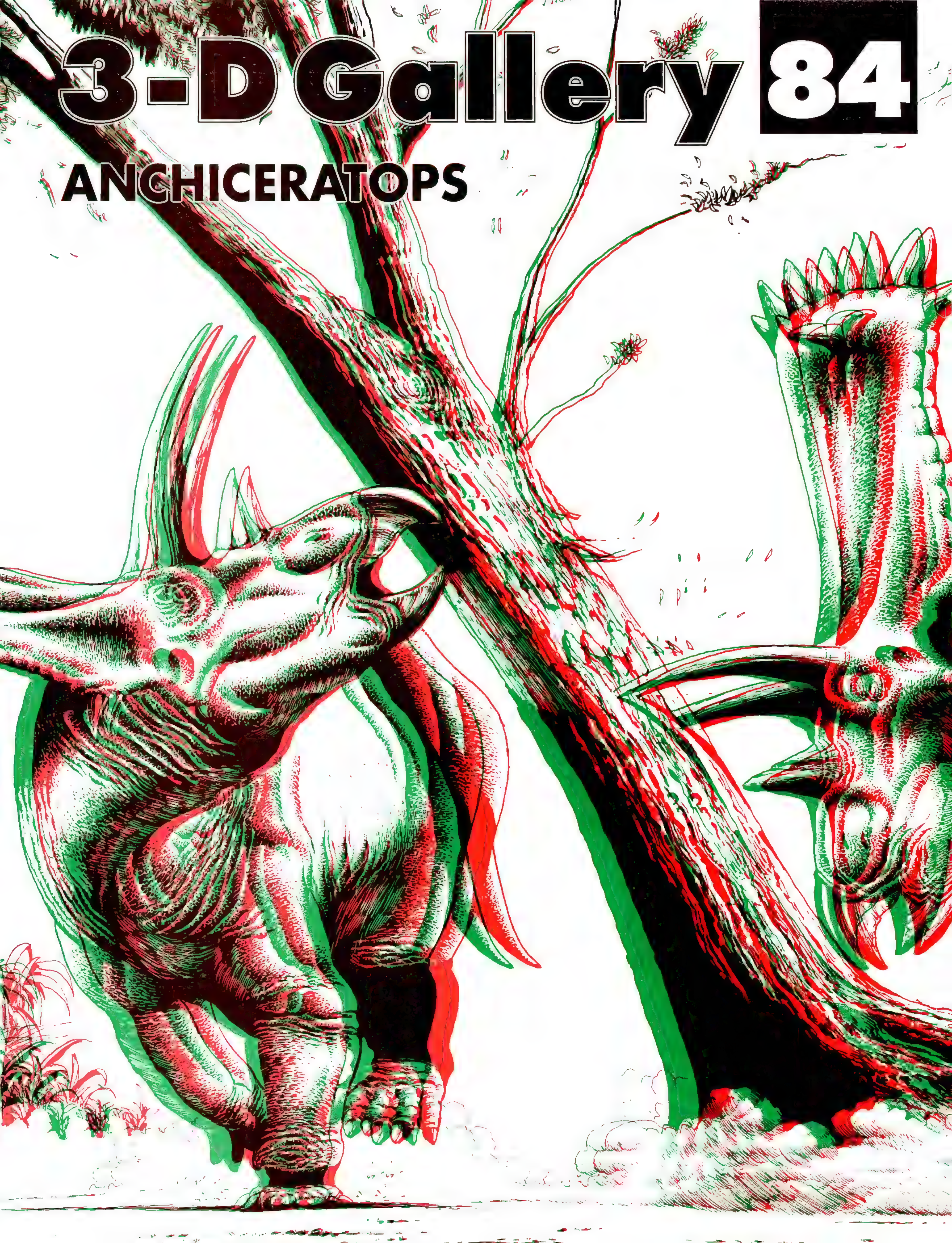


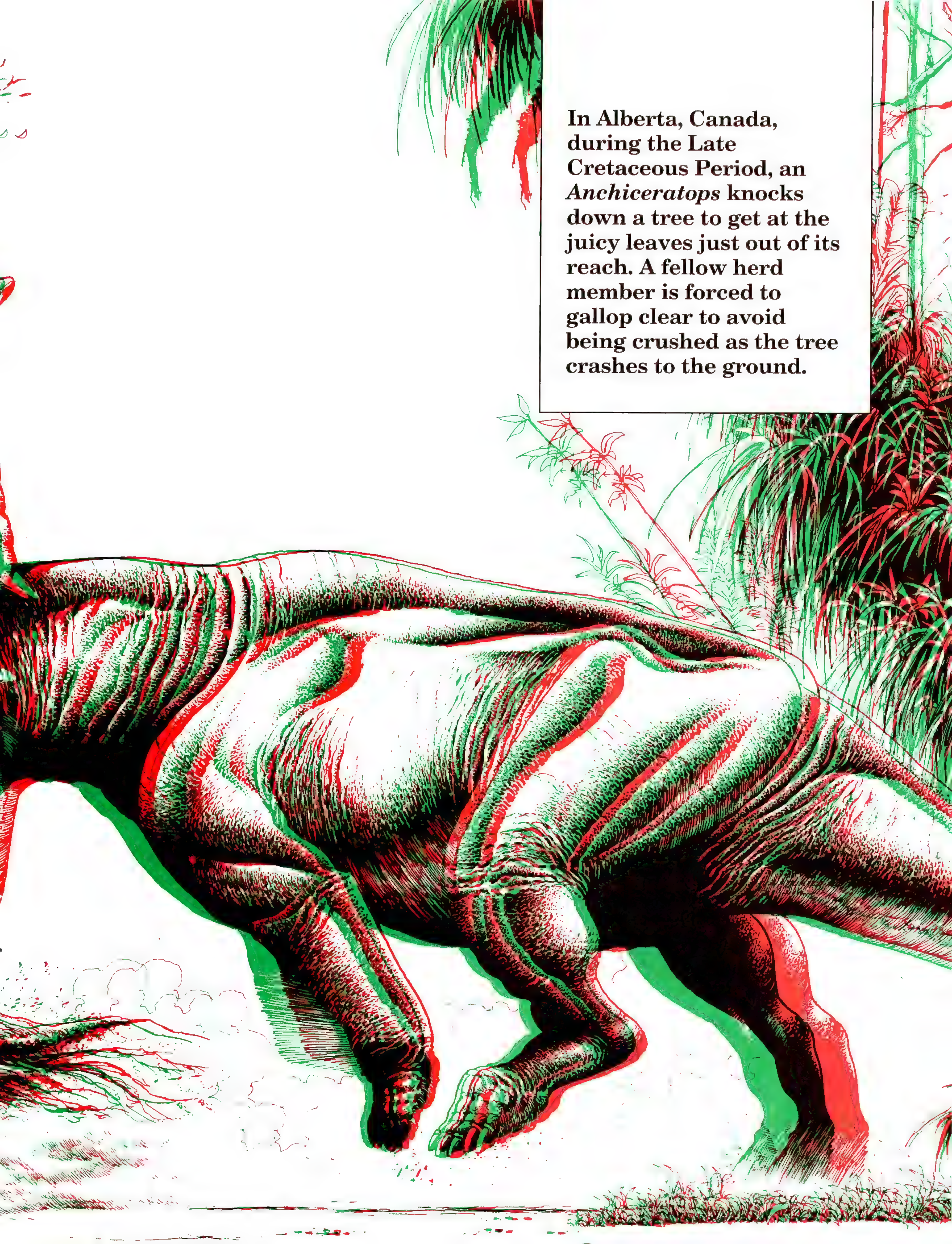
PIATNITZKYSAURUS

Two ferocious *Piatnitzkysaurus* attack a young *Patagosaurus* in Mid Jurassic South America. The *Piatnitzkysaurus* rush at the sauropod with jaws open wide, and tear off chunks of *Patagosaurus'* flesh with their razor-sharp teeth and claws.

3-D Gallery 84

ANCHICERATOPS





In Alberta, Canada, during the Late Cretaceous Period, an *Anchiceratops* knocks down a tree to get at the juicy leaves just out of its reach. A fellow herd member is forced to gallop clear to avoid being crushed as the tree crashes to the ground.

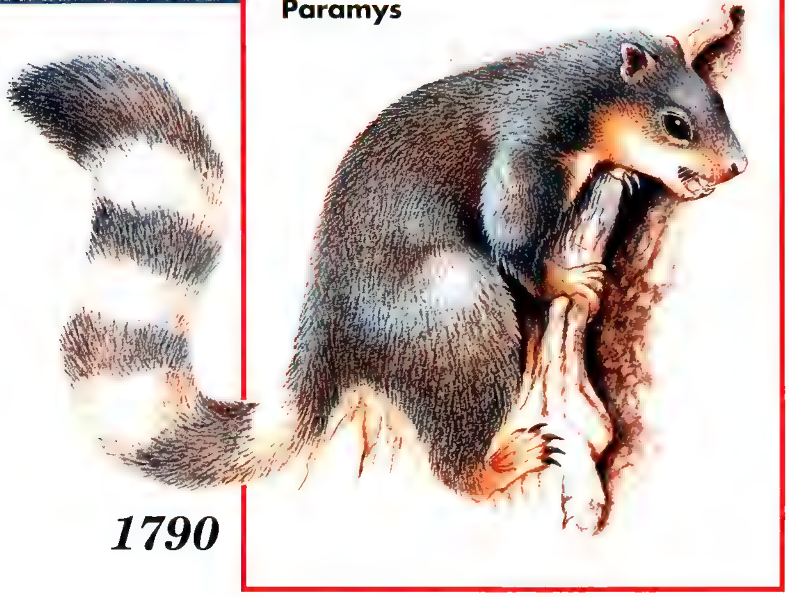
Champion gnawers

Rats and mice are members of the world's most successful group of mammals – the rodents.

The first rodents looked rather like squirrels. They appeared in North America about 60 million years ago. There are now around 1,700 species of rodent throughout the world – they make up nearly half the world's population of mammals.

GNAWESOME

Rodents have long, chisel-like front teeth, specially designed for feeding on tough plants. Their teeth are continually worn down as they gnaw away at woody stems. But they never wear out because the teeth are always growing. Scientists have learned a great deal about rodent evolution from studying teeth fossils.



BABY BOOM

Small rodents are easy prey. But they can breed at an amazingly fast rate. A mouse can start to have babies at 6 weeks old and produce as many as 70 in a year!

TREE TIME

The earliest rodents were small, tree-climbing animals. One of the first was the squirrel-like *Paramys*, which lived about 60 million years ago. *Paramys* was better at climbing trees to find food than most other animals.

RHINO-SIZED

The largest rodent today is the capybara, which is related to the guinea pig. It grows as big as a large pig. Some prehistoric rodents were even larger. *Telicomys*, which lived about 10 million years ago, was as big as a rhino. It must have looked like a giant capybara and was probably the largest rodent ever.

ODD ONE OUT

The strangest-looking prehistoric rodent was *Epigaulus*, which lived about 20 million years ago. *Epigaulus* was similar to today's beaver. But it had a pair of stout horns on its nose. Experts now think only the males had horns. They may have used them when fighting over females.

Telicomys

Capybara

Guinea Pig

***Epigaulus* was a prehistoric rodent with a pair of thick horns on its nose. The two *Epigaulus* shown here (left) are trying to escape from *Hemicyon*, a prehistoric dog.**

IT'S A FACT

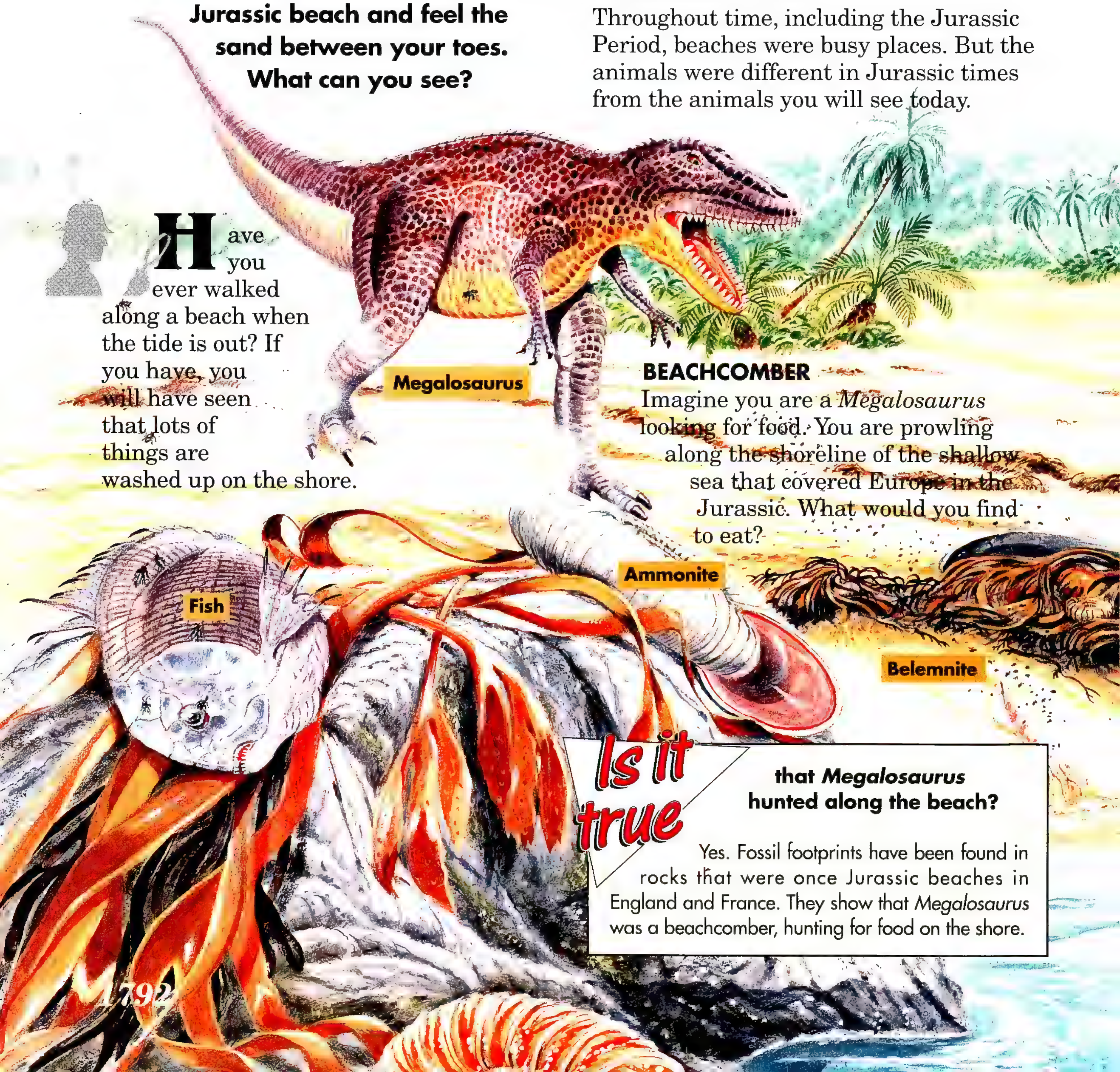
BLACK DEATH

One type of rodent was responsible for the deaths of around 25 million people. In the Middle Ages, the black rat *Rattus rattus* carried a plague that killed over a quarter of the population of Europe.

Jurassic beach

Step out of your time machine on to a Jurassic beach and feel the sand between your toes. What can you see?

Have you ever walked along a beach when the tide is out? If you have, you will have seen that lots of things are washed up on the shore.



BUSY BEACH

There are seashells, starfish, seaweeds, and sometimes dead fish and other animals. Birds, such as seagulls, scavenge along the tidemark, looking for anything they can eat. Wading birds may be prodding into the damp sand looking for worms and shellfish.

THE SANDS OF TIME

Throughout time, including the Jurassic Period, beaches were busy places. But the animals were different in Jurassic times from the animals you will see today.

BEACHCOMBER

Imagine you are a *Megalosaurus* looking for food. You are prowling along the shoreline of the shallow sea that covered Europe in the Jurassic. What would you find to eat?

Is it true

that *Megalosaurus* hunted along the beach?

Yes. Fossil footprints have been found in rocks that were once Jurassic beaches in England and France. They show that *Megalosaurus* was a beachcomber, hunting for food on the shore.

THE TIDEMARK

Damp seaweed shows the level of the last high tide. Drier seaweed, dead and sandy, lies further up. It is full of insects. Entangled in the seaweed are crinoids – so-called sea lilies. They look like flowers but are really starfish-like animals on stalks – totally inedible.

SHELLY THINGS

Amongst the seaweed are the shells of ammonites, mostly empty. Nothing to eat there. The shells of curly oysters, called *Gryphaea*, also lie here and there, empty.

SMELLY MOUTHFULS

Dead belemnites lie about too. Snap them up, it doesn't matter how smelly they are, there is still some flesh on them. But they are very small.

PLESIOSAUR FOR DINNER?

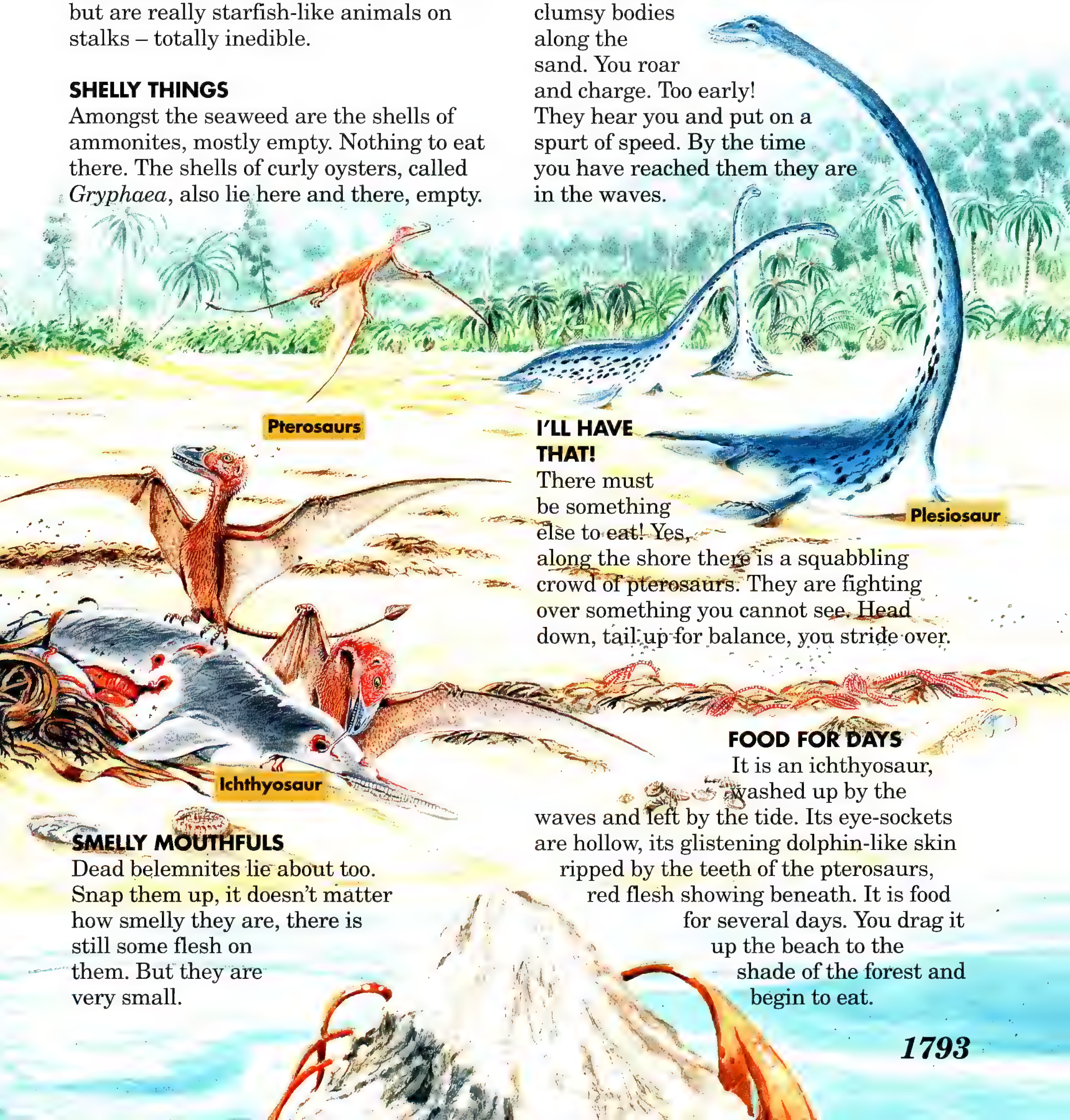
There must be something bigger to eat. Yes, there is – plesiosaurs. Some females have scrambled ashore to lay their eggs. They are now heaving their way back to the sea on their paddles, dragging their clumsy bodies along the sand. You roar and charge. Too early! They hear you and put on a spurt of speed. By the time you have reached them they are in the waves.

I'LL HAVE THAT!

There must be something else to eat! Yes, along the shore there is a squabbling crowd of pterosaurs. They are fighting over something you cannot see. Head down, tail up for balance, you stride over.

FOOD FOR DAYS

It is an ichthyosaur, washed up by the waves and left by the tide. Its eye-sockets are hollow, its glistening dolphin-like skin ripped by the teeth of the pterosaurs, red flesh showing beneath. It is food for several days. You drag it up the beach to the shade of the forest and begin to eat.



SEA LILIES

We still find crinoids, or sea lilies, nowadays, but only in deep seas. In Jurassic times these relatives of starfish lived in shallow waters, forming thick, waving flower-like beds.

OLD OYSTERS

Fossil *Gryphaea*, the curly oysters, are very common in Jurassic rocks. They must have formed vast beds at the bottom of the sea and many *Gryphaea* shells would have washed up on Jurassic beaches.

TENTACLES IN SHELLS

Ammonites are related to today's octopus, but they lived in a shell. When an ammonite died, its body was left sealed inside the shell.

CRUNCHY CENTRE

Belemnites would have been quite meaty – all muscular tentacles and fleshy flaps – just like today's squid. Unlike the modern squid, however, they all had a pencil-shaped shell deep inside the body.

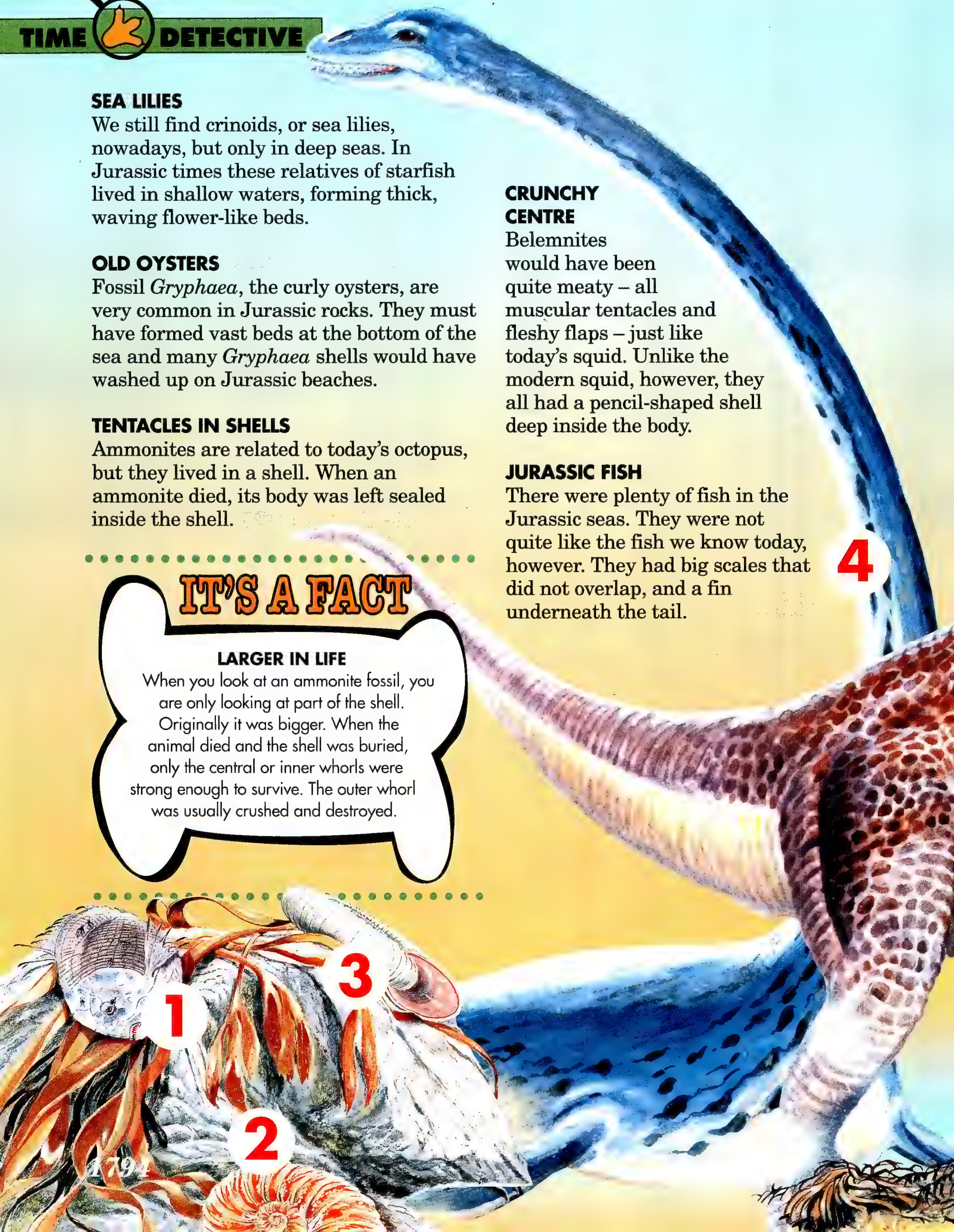
JURASSIC FISH

There were plenty of fish in the Jurassic seas. They were not quite like the fish we know today, however. They had big scales that did not overlap, and a fin underneath the tail.

IT'S A FACT

LARGER IN LIFE

When you look at an ammonite fossil, you are only looking at part of the shell. Originally it was bigger. When the animal died and the shell was buried, only the central or inner whorls were strong enough to survive. The outer whorl was usually crushed and destroyed.



OUT OF THE SEA

Plesiosaurs lived in the sea, but they probably came ashore to lay eggs, just as turtles do today. Plesiosaurs were probably clumsy on land, and would have been easy prey for any meat-eating dinosaur.

A RARE STRANDING

Live ichthyosaurs did not come on to land. Their young were born alive at sea. The only time an ichthyosaur came ashore was after it was dead and the waves washed its body on to a beach. Then it would have been eaten by scavenging animals.

LIKE VULTURES?

The big-headed, sharp-toothed pterosaur *Dimorphodon* may well have been like the vultures of today. It too may have eaten dead animals washed up on a Jurassic beach.

1 A dead fish, such as this *Dapedius,* would attract many beach scavengers.

2 Ammonite shells were probably common on Jurassic beaches but...

3 ...dead ammonites did not provide food for beach scavengers as the flesh was sealed inside the shell.

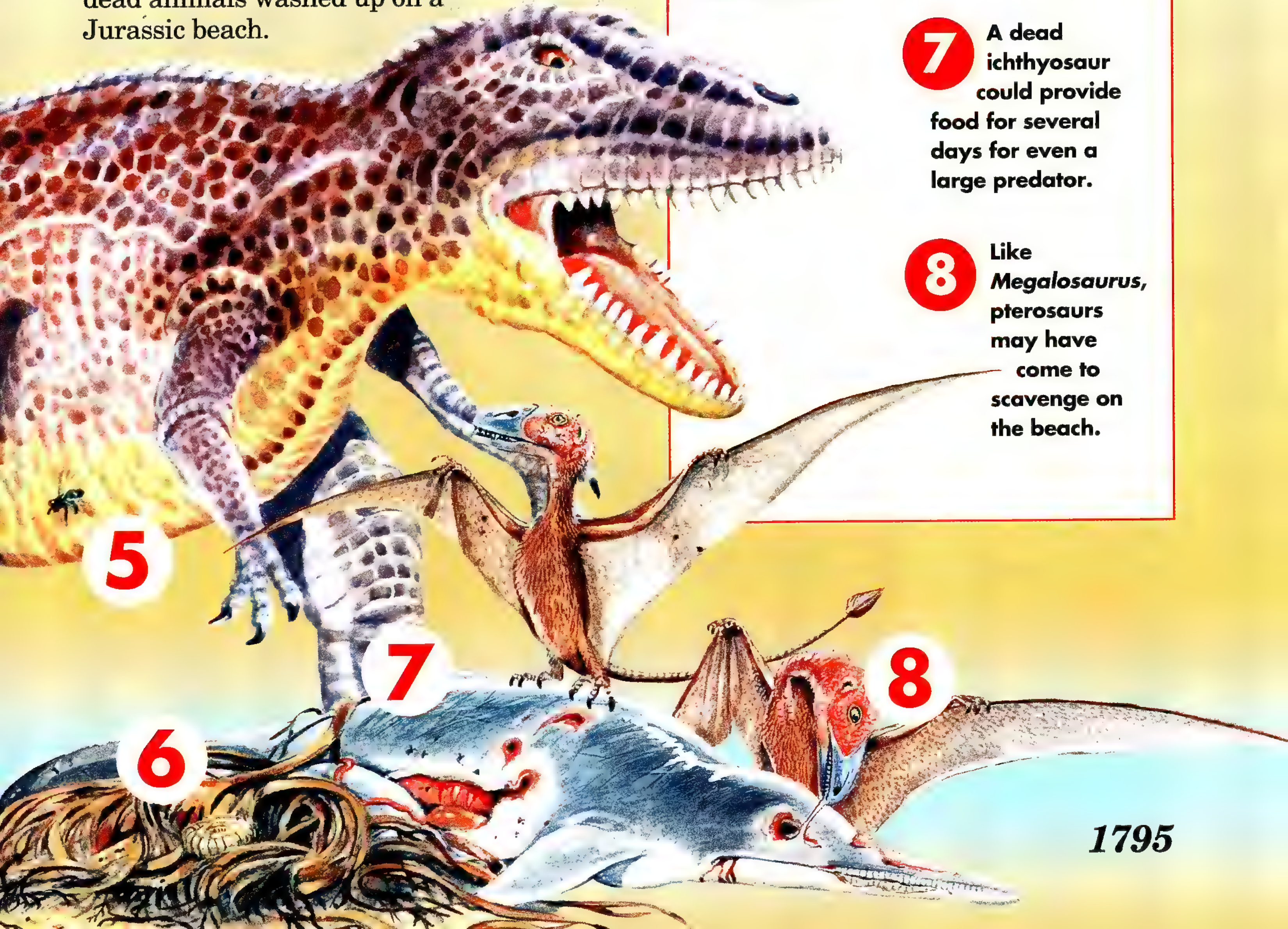
4 A swift predator might be able to catch a plesiosaur as it came to lay eggs.

5 *Megalosaurus* hunted for carrion and fresh meat on Jurassic beaches.

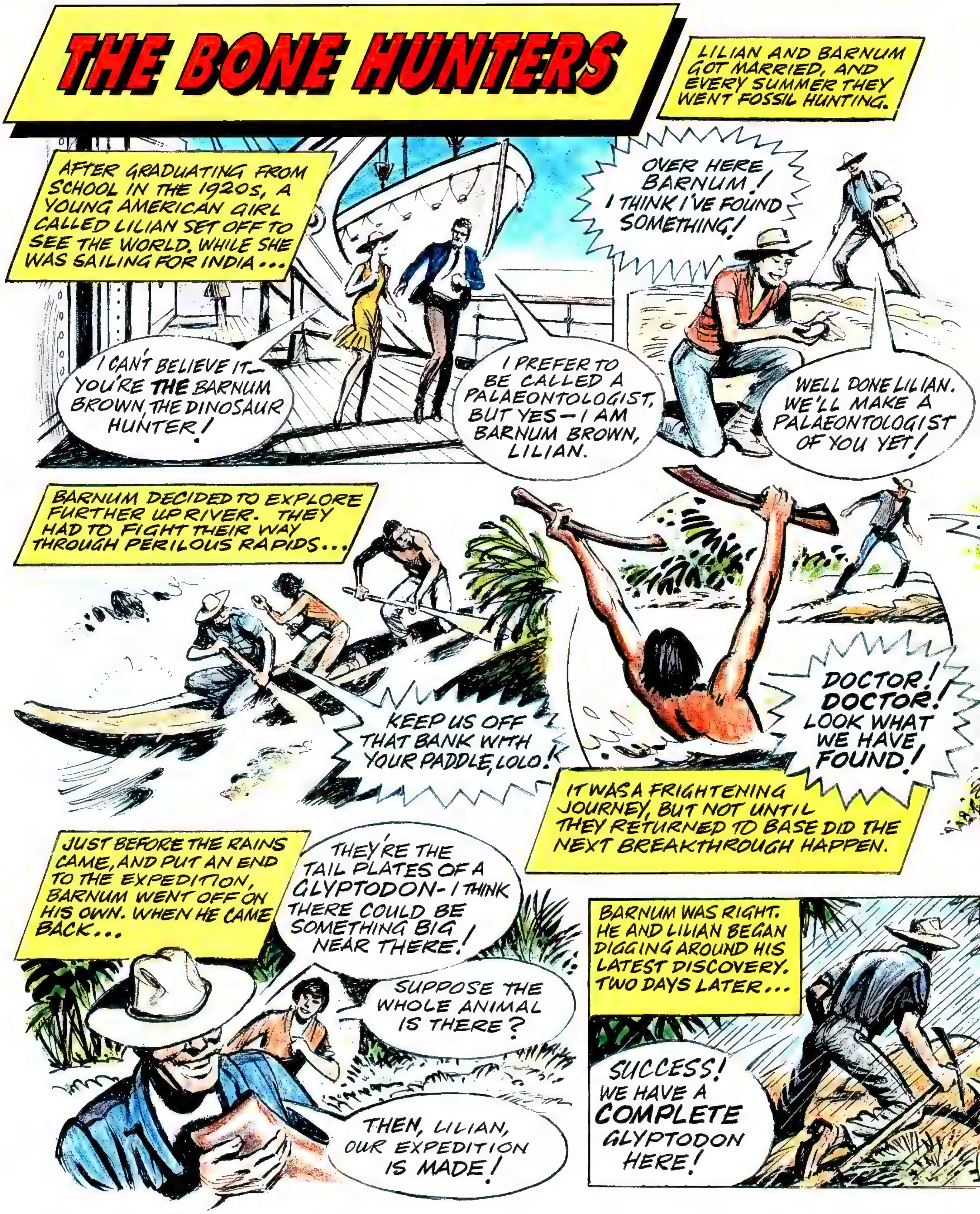
6 Dried out seaweed provided a feast only for flies – not for meat-eaters in search of food.

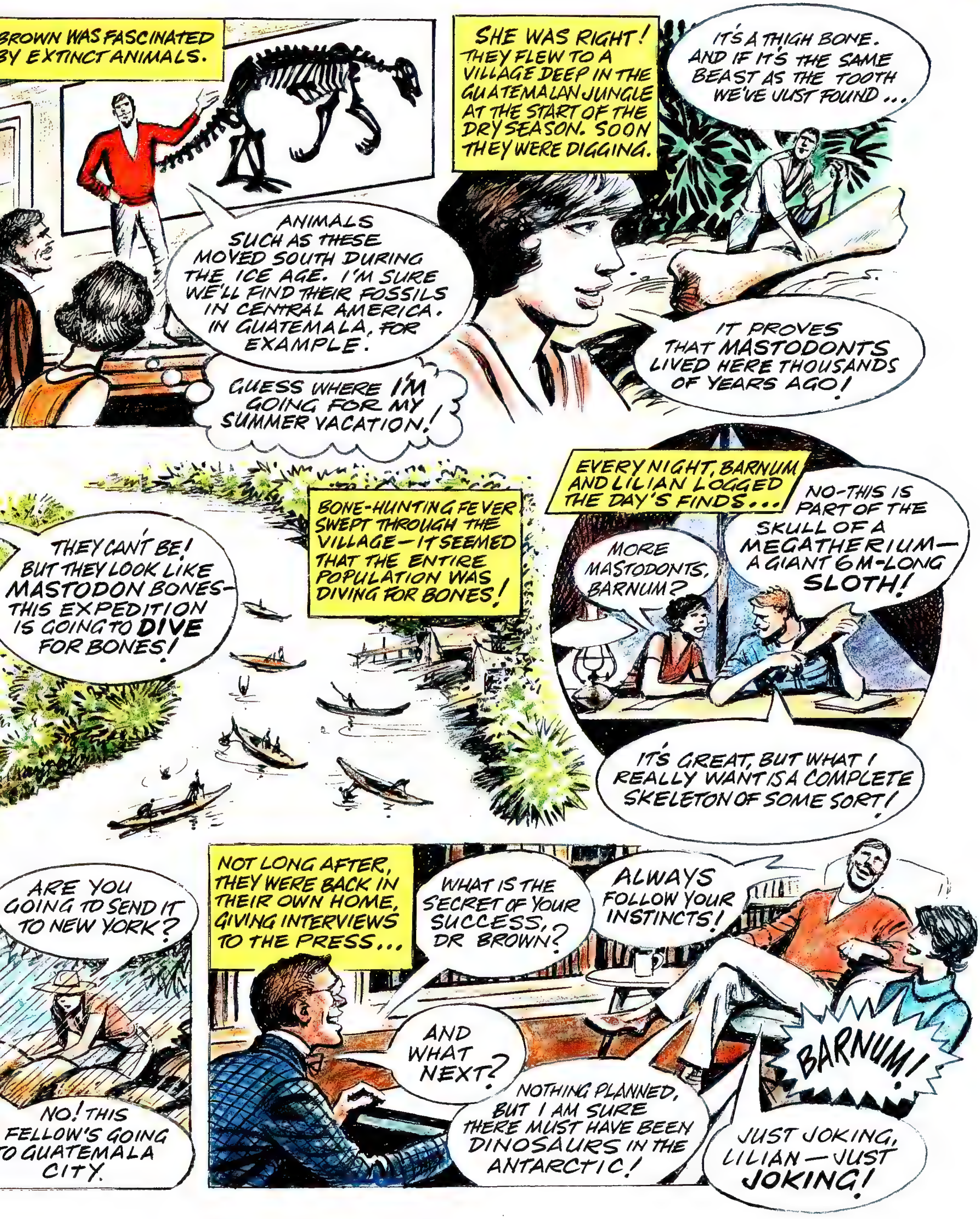
7 A dead ichthyosaur could provide food for several days for even a large predator.

8 Like *Megalosaurus,* pterosaurs may have come to scavenge on the beach.



THE BONE HUNTERS

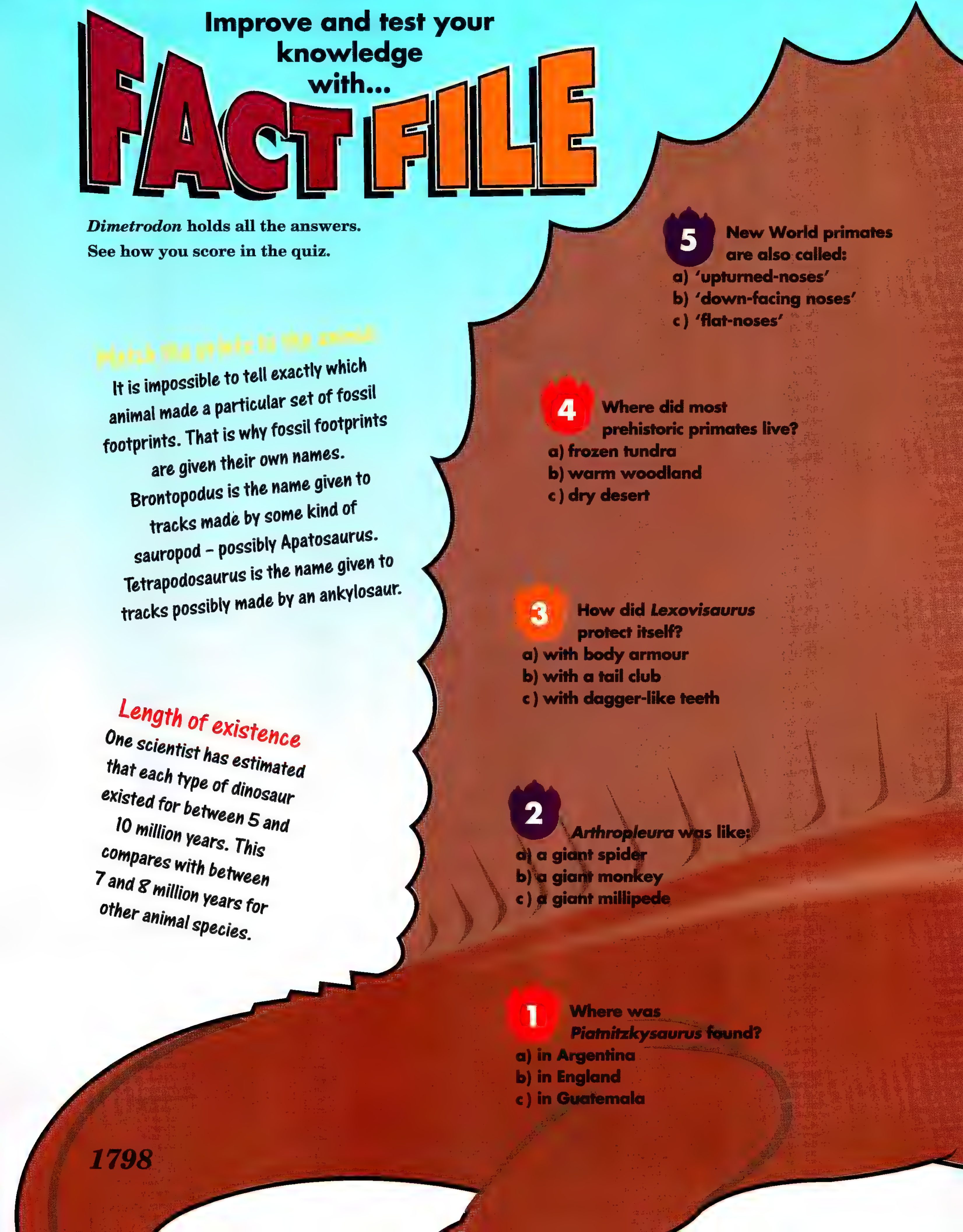

AFTER GRADUATING FROM SCHOOL IN THE 1920S, A YOUNG AMERICAN GIRL CALLED LILIAN SET OFF TO SEE THE WORLD. WHILE SHE WAS SAILING FOR INDIA...
I CAN'T BELIEVE IT— YOU'RE **THE** BARNUM BROWN, THE DINOSAUR HUNTER!
I PREFER TO BE CALLED A PALAEONTOLOGIST, BUT YES—I AM BARNUM BROWN, LILIAN.
LILIAN AND BARNUM GOT MARRIED, AND EVERY SUMMER THEY WENT FOSSIL HUNTING.
OVER HERE BARNUM! I THINK I'VE FOUND SOMETHING!
WELL DONE LILIAN. WE'LL MAKE A PALAEONTOLOGIST OF YOU YET!
BARNUM DECIDED TO EXPLORE FURTHER UP RIVER. THEY HAD TO FIGHT THEIR WAY THROUGH PERILOUS RAPIDS...
KEEP US OFF THAT BANK WITH YOUR PADDLE, LOLO!
DOCTOR! DOCTOR! LOOK WHAT WE HAVE FOUND!
IT WAS A FRIGHTENING JOURNEY, BUT NOT UNTIL THEY RETURNED TO BASE DID THE NEXT BREAKTHROUGH HAPPEN.
JUST BEFORE THE RAINS CAME, AND PUT AN END TO THE EXPEDITION, BARNUM WENT OFF ON HIS OWN. WHEN HE CAME BACK...
THEY'RE THE TAIL PLATES OF A GLYPTODON - I THINK THERE COULD BE SOMETHING BIG NEAR THERE!
SUPPOSE THE WHOLE ANIMAL IS THERE?
THEN, LILIAN, OUR EXPEDITION IS MADE!
BARNUM WAS RIGHT. HE AND LILIAN BEGAN DIGGING AROUND HIS LATEST DISCOVERY. TWO DAYS LATER...
SUCCESS! WE HAVE A COMPLETE GLYPTODON HERE!


BROWN WAS FASCINATED BY EXTINCT ANIMALS.
ANIMALS SUCH AS THESE MOVED SOUTH DURING THE ICE AGE. I'M SURE WE'LL FIND THEIR FOSSILS IN CENTRAL AMERICA. IN GUATEMALA, FOR EXAMPLE.
GUESS WHERE I'M GOING FOR MY SUMMER VACATION!
SHE WAS RIGHT! THEY FLEW TO A VILLAGE DEEP IN THE GUATEMALAN JUNGLE AT THE START OF THE DRY SEASON. SOON THEY WERE DIGGING.
IT'S A THIGH BONE. AND IF IT'S THE SAME BEAST AS THE TOOTH WE'VE JUST FOUND...
IT PROVES THAT MASTODONTS LIVED HERE THOUSANDS OF YEARS AGO!
THEY CAN'T BE! BUT THEY LOOK LIKE MASTODON BONES- THIS EXPEDITION IS GOING TO DIVE FOR BONES!
BONE-HUNTING FEVER SWEPT THROUGH THE VILLAGE—IT SEEMED THAT THE ENTIRE POPULATION WAS DIVING FOR BONES!
EVERY NIGHT, BARNUM AND LILIAN LOGGED THE DAY'S FINDS...
MORE MASTODONTS, BARNUM?
NO—THIS IS PART OF THE SKULL OF A MEGATHERIUM— A GIANT 6M-LONG SLOTH!
IT'S GREAT, BUT WHAT I REALLY WANT IS A COMPLETE SKELETON OF SOME SORT!
ARE YOU GOING TO SEND IT TO NEW YORK?
NO! THIS FELLOW'S GOING O GUATEMALA CITY.
NOT LONG AFTER, THEY WERE BACK IN THEIR OWN HOME, GIVING INTERVIEWS TO THE PRESS...
WHAT IS THE SECRET OF YOUR SUCCESS, DR BROWN?
ALWAYS FOLLOW YOUR INSTINCTS!
AND WHAT NEXT?
NOTHING PLANNED, BUT I AM SURE THERE MUST HAVE BEEN DINOSAURS IN THE ANTARCTIC!
BARNUM!
JUST JOKING, LILIAN—JUST JOKING!

Improve and test your knowledge with...

FACT FILE

Dimetrodon holds all the answers. See how you score in the quiz.



Match the prints to the animal

It is impossible to tell exactly which animal made a particular set of fossil footprints. That is why fossil footprints are given their own names. Brontopodus is the name given to tracks made by some kind of sauropod – possibly Apatosaurus. Tetrapodosaurus is the name given to tracks possibly made by an ankylosaur.

Length of existence

One scientist has estimated that each type of dinosaur existed for between 5 and 10 million years. This compares with between 7 and 8 million years for other animal species.

5 New World primates are also called:

a) 'upturned-noses'
b) 'down-facing noses'
c) 'flat-noses'

4 Where did most prehistoric primates live?

a) frozen tundra
b) warm woodland
c) dry desert

3 How did *Lexovisaurus* protect itself?

a) with body armour
b) with a tail club
c) with dagger-like teeth

2 *Arthropleura* was like:

a) a giant spider
b) a giant monkey
c) a giant millipede

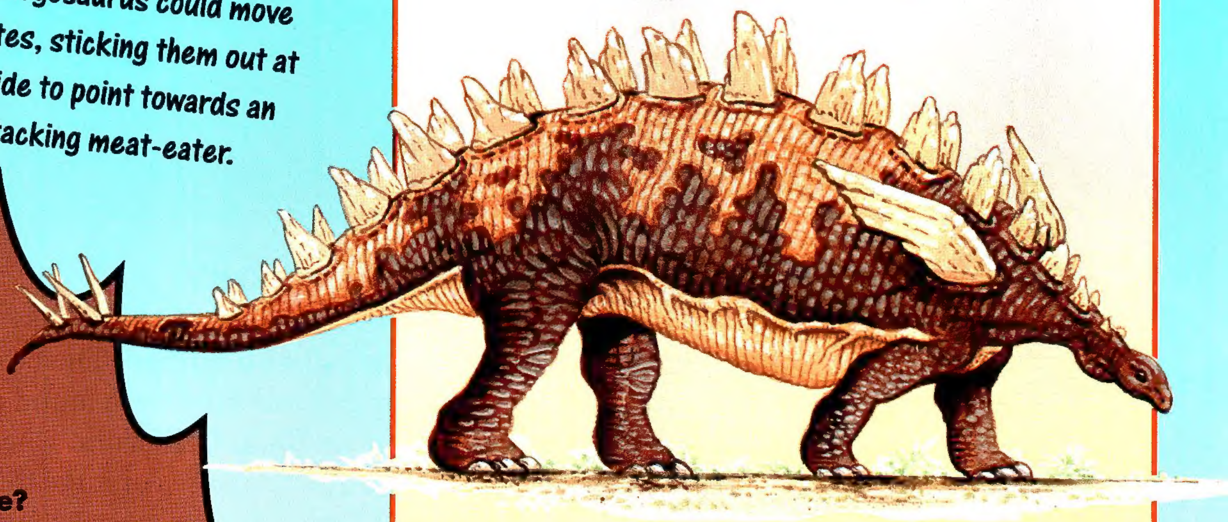
1 Where was *Piatnitzkysaurus* found?

a) in Argentina
b) in England
c) in Guatemala

En garde!

Some scientists have proposed that Stegosaurus could move its plates, sticking them out at the side to point towards an attacking meat-eater.

Chinese wings



A Late Jurassic stegosaur called Yingshanosaurus was found in China in 1984. It had a pair of broad, wing-like spines on its shoulders. It may be that only male Yingshanosaurus had these.

6 **What animal did *Epigaulus* resemble?**
a) a guinea pig
b) a beaver
c) a giraffe

7 ***Telicomys* was a:**
a) giant prehistoric rodent
b) tiny prehistoric ape
c) fierce prehistoric bird

8 **Fossil footprints show *Megalosaurus* hunted:**
a) in the sea
b) under the ground
c) on the beach

9 **What does *Teratornis* mean?**
a) sticky beak
b) monster bird
c) vulture face

10 ***Anchiceratops* knocked down trees so that it could:**
a) reach leaves to eat
b) show off its strength
c) gather firewood

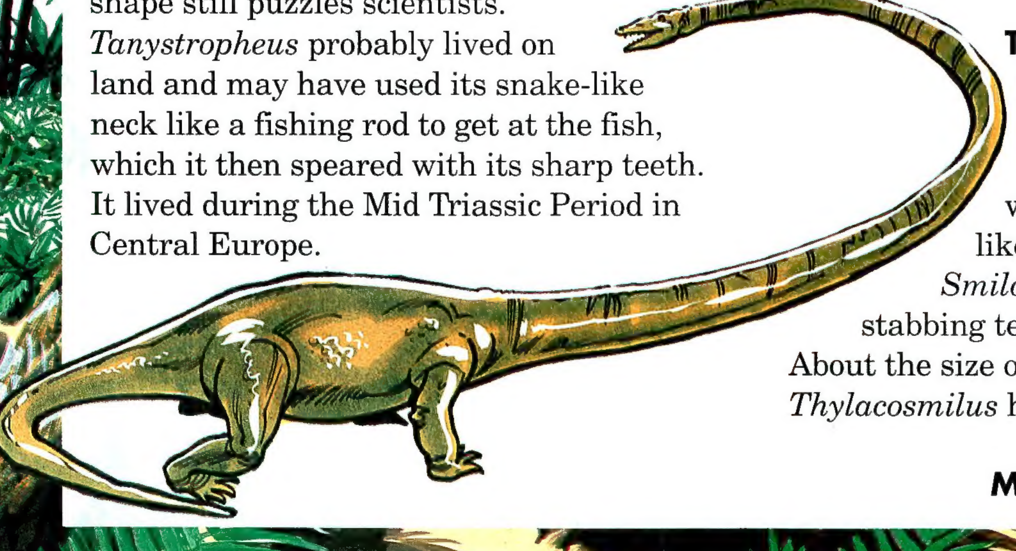
Answers to the questions on inside back cover

TAENIOLABIS 60 MYA

Taeniolabis (ty-nee-oh-lah-bis) was an early mammal, about as big as a beaver. It had strong, chisel-like teeth and gnawed tough plants and nuts. This stocky little plant-eater walked on four legs and its body was covered with hair. *Taeniolabis* had a large skull for the size of its body and crunched its food with the help of strong jaws. Its name means 'ribbon-lipped'.

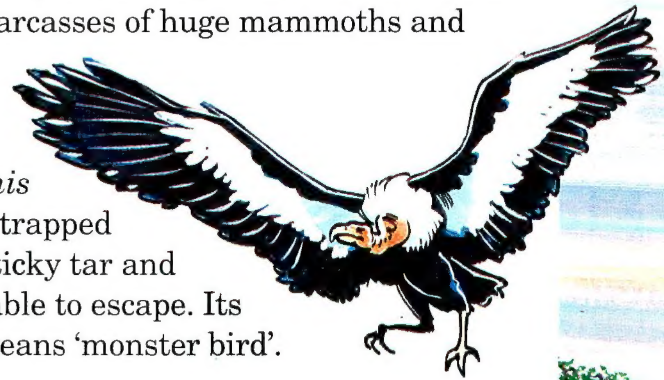
TANYSTROPHEUS 240 MYA

Tanystropheus (tan-ee-stro-fee-us) means 'long bending reptile'. This amazing animal had a neck longer than the length of its body and tail combined. Its extraordinary shape still puzzles scientists. *Tanystropheus* probably lived on land and may have used its snake-like neck like a fishing rod to get at the fish, which it then speared with its sharp teeth. It lived during the Mid Triassic Period in Central Europe.



TERATORNIS 1 MYA

Teratornis (ter-a-torn-is) was a giant vulture, as tall as a human. The best fossils of this enormous bird were found in the tar pits of La Brea, California, where *Teratornis* fed on the carcasses of huge mammoths and other plant-eaters. *Teratornis* became trapped in the sticky tar and was unable to escape. Its name means 'monster bird'.



THAUMATOSAURUS 160 MYA

Thaumatosaurus (tho-mat-o-saw-rus) was an early plesiosaur that lived in Europe in the Early to Mid Jurassic Period. It was well suited to life in the water, where it swam with the help of two sets of flippers. It also used these flippers to haul its 4m-long body on to land to lay its eggs. *Thaumatosaurus* fed on fishes and ammonites.

THYLACOSMILUS 5 MYA

Thylacosmilus (thy-la-koz-mile-us) lived in South America in Pliocene times. It was a marsupial mammal, like the sabre-toothed cat *Smilodon,* with two long, curved stabbing teeth for attacking its prey. About the size of today's leopard, *Thylacosmilus* hunted smaller mammals.

MYA = MILLION YEARS AGO

COMING IN PART 76 OF

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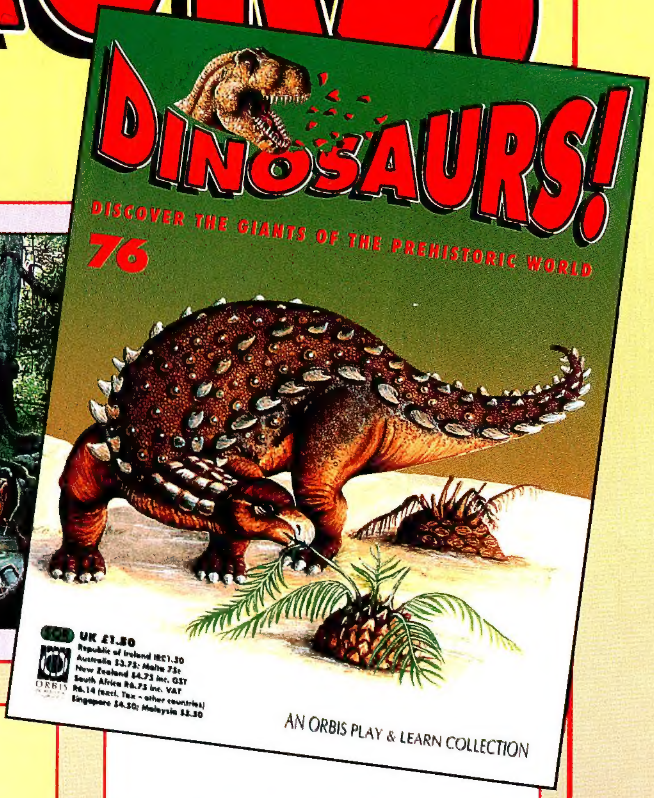
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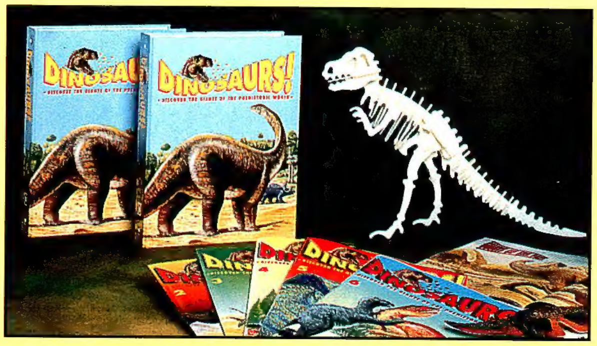

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ANSWERS TO FACT FILE QUESTIONS: 1.a 2.c 3.a 4.b 5.c 6.b 7.a 8.c 9.b 10.a

Morrison

Dr David Norman of Cambridge University answers your dinosaur questions

ASK THE EXPERT

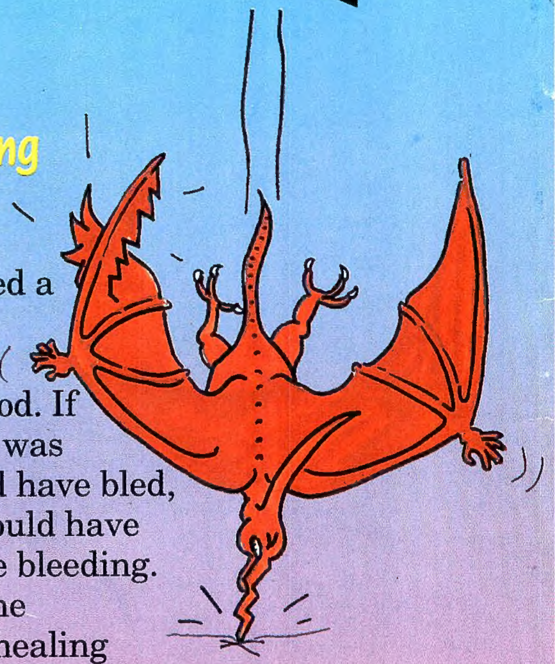
How do we know how dinosaurs reared their babies?

Palaeontologists gather information by investigating dinosaur nests. They discover how and where the nest was built, how the eggs might have been laid and incubated, and how the baby dinosaurs might have been reared. Palaeontologists use information about the nesting habits of today's birds and reptiles to understand all the clues they find in dinosaur nests.

How do we know that Ornithomimus was toothless?

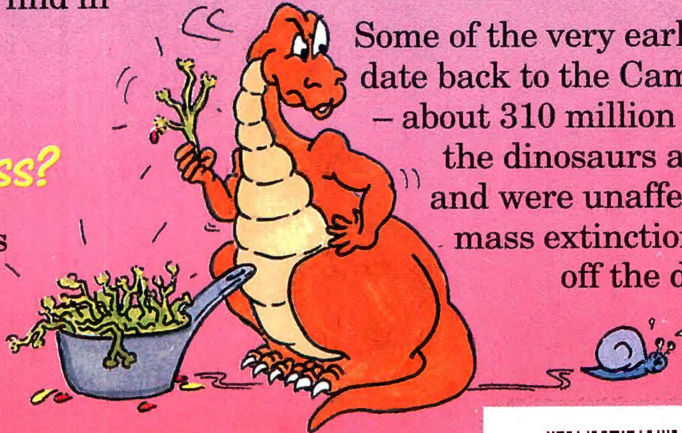
We know that dinosaurs such as the ornithomimosaurs were toothless because their jaws are narrow and show no sockets or areas for the growth and attachment of teeth. In fact their jaws look very like those of living birds, which also lack teeth.

Would a pterosaur's wing heal if it tore?



Pterosaur wings probably contained a thin layer of living tissue, supplied with blood. If a pterosaur wing was damaged it would have bled, then the blood would have clotted to stop the bleeding. Clotting marks the beginning of the healing process. The wing membrane might have been a little deformed after healing.

Were there snails during the time of dinosaurs?



Some of the very earliest snails date back to the Cambrian Period – about 310 million years before the dinosaurs appeared – and were unaffected by the mass extinction that killed off the dinosaurs 66 million years ago.

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